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HIV and AIDS in Canada

Surveillance Report to June 30, 1998

November 1998

Canada

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Cat. No. H43-53/32-1998-2E
ISBN 0-662-27414-8

104-00983/

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Surveillance Report to June 30, 1998

Division of HIV/AIDS Surveillance
Bureau of HIV/AIDS, STD and TB,
Laboratory Centre for Disease Control
Health Protection Branch
Health Canada
November, 1998

This report is available:

By mail

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Ce rapport est aussi disponible en français.

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Acknowledgements: We acknowledge the provincial/territorial HIV/AIDS co-ordinators, laboratories, health care providers and reporting physicians for providing the non-nominal confidential data that enabled this report to be published. Special credit goes to our Technical Advisory Group that has guided the process of the development of the National HIV Database.

We also acknowledge the contributions made by LCDC's Dissemination Division in editing and producing the document, both for printing and posting on the Internet and thank Ms. Cathy Brims, Mr. Norman Cameron and Ms. Teresa Wilk for their contribution to the production of the report.

N.B. This document must be cited as source for any information extracted and used from it.

Suggested citation: Health Canada. *HIV and AIDS in Canada. Surveillance Report to June 30, 1998.* Division of HIV/AIDS Surveillance, Bureau of HIV/AIDS, STD and TB, LCDC, Health Canada, November 1998.

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Information to the readers of HIV and AIDS in Canada

The Division of HIV/AIDS Surveillance of the Bureau of HIV/AIDS, STD and TB at the Laboratory Centre for Disease Control (LCDC), Health Canada is pleased to provide you with the second integrated HIV and AIDS Surveillance Report.

This publication of *HIV and AIDS in Canada* covers material formerly presented in two separate reports: *HIV in Canada* and *AIDS in Canada,* and reflects an integrated approach to HIV and AIDS surveillance.

HIV Positive Test Reports

Since the beginning of the epidemic to June 30, 1998, a total of 41,964 positive HIV tests have been reported to the Laboratory Centre for Disease Control (LCDC) at Health Canada. You will note that: 1) the number of positive HIV tests reported to the LCDC in 1997 was 14.8% less than in 1995 (see Table 1); and 2) the HIV epidemic in Canada is changing from the early epidemic that primarily affected men who have sex with men (MSM) and those who received blood and blood products to the current epidemic that primarily affects injection drug users (IDUs) but continues to include MSM (see Table 4c). Those who present for HIV testing and test positive are only a proportion of the HIV-infected population. In fact, at the end of 1996, the Bureau of HIV/AIDS, STD and TB estimated that of the 41,000 living with HIV, 11,000-17,000 Canadians were HIV-infected but still unaware of their infection[1].

AIDS Case Reports

A total of 15,935 AIDS cases have been diagnosed and reported to the LCDC at Health Canada from the beginning of the epidemic up to June 30, 1998 (see Table 7). The annual number of AIDS cases reported peaked at 1,743 cases in 1993. Since 1993, the number of AIDS cases has steadily declined even after adjusting for reporting delays (see Figure 1). In 1997 the annual number of reported AIDS cases had dropped by 74.5% compared to 1993, marking a decline in AIDS incidence in Canada. Mid-year data for the number of reported AIDS cases for 1998 indicate a further decline in the number of reported AIDS cases in Canada for this year.

AIDS Death Reports

Of the total number of AIDS cases reported to LCDC as of June 30, 1998, 71% (or 11, 381 cases) are now deceased (see Table 14). The number of reported AIDS deaths peaked at 1,419 cases in 1995. Since 1995, the number of reported AIDS deaths each year has significantly declined, with a 74% drop in reported AIDS cases in 1997 as compared to 1995. Mid-year data for the number of reported AIDS deaths for 1998 indicate a further decline in the number of reported AIDS deaths in Canada for this year. It is important to note that deaths among AIDS cases are undercounted due to reporting delays and underreporting of deaths due to AIDS.

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[1] *HIV Testing Among Canadians: An Estimated 11,000-17,000 Current HIV Infections May Not Be Diagnosed.* HIV/AIDS EpiUpdate, Bureau of HIV/AIDS, STD and TB Update Series, Laboratory Centre for Disease Control, Health Canada, May 1998.

In addition to the HIV/AIDS data highlighted above, there have been an increasing number of requests for information regarding ethnicity of HIV and AIDS case reports. While physicians have routinely collected information regarding ethnic status of AIDS-diagnosed individuals since the beginning of the epidemic, ethnicity data have not been a component of HIV and AIDS surveillance reports. In future HIV and AIDS surveillance reports, ethnicity information will be incorporated as a feature to respond to the requests for ethnicity information.

Please note that the January to June 1998 positive HIV test data and AIDS case report data from the Province of Alberta were not available at the time of publication due to changes in provincial disease reporting systems, and will be included in future HIV and AIDS surveillance reports. Positive HIV test report data from the Provinces of British Columbia and Manitoba were not available at the time of preparation of this surveillance report.

The Division of HIV/AIDS Surveillance is always working towards improving the report to reflect the changing disease surveillance requirements. We welcome and appreciate your comments and suggestions.

Yours sincerely,

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Table of Contents

COMMENTARY ON SURVEILLANCE OF HIV POSITIVE TEST REPORTS AND AIDS DIAGNOSES 1

TECHNICAL NOTES: HIV POSITIVE TEST REPORTS AND AIDS CASE REPORTS IN CANADA. 3

SECTION I
HIV IN CANADA, HIV POSITIVE TEST REPORTS IN CANADA

Table 1 Number of positive HIV test reports by year of test, Canada, test reports from November 1, 1985 to June 30, 1998; last data reported to LCDC for the period ended August 28, 1998. 4

Table 2 Cumulative number of positive HIV test reports by year of test, by age group and gender, Canada, test reports from November 1, 1985 to June 30, 1998; last data reported to LCDC for the period ended August 28, 1998. 5

Table 3a Number of positive HIV test reports by age group and year of test, males, Canada, test reports from November 1, 1985 to June 30, 1998; last data reported to LCDC for the period ended August 28, 1998. 6

Table 3b Number of positive HIV test reports by age group and year of test, females, Canada, test reports from November 1, 1985 to June 30, 1998; last data reported to LCDC for the period ended August 28, 1998. 7

Table 3c Number of positive HIV test reports by age group and year of test, Canada, test reports from November 1, 1985 to June 30, 1998; last data reported to LCDC for the period ended August 28, 1998. 8

Table 4a Number of positive HIV test reports by exposure category and year of test, adult males (15 years old and over), Canada, test reports from November 1, 1985 to June 30, 1998; last data reported to LCDC for the period ended August 28, 1998.. 9

Table 4b Number of HIV positive test reports by exposure category and year of test, adult females (15 years old and over), Canada, test reports from November 1, 1985 to June 30, 1998; last data reported to LCDC for the period ended August 28, 1998. . 10

Table 4c Number of positive HIV test reports by exposure category and year of test, adults (15 years old and over), Canada, test reports from November 1, 1985 to June 30, 1998; last data reported to LCDC for the period ended August 28, 1998 11

Table 4d Number of positive HIV test reports by exposure category and year of test, pediatrics tests (less than 15 years old), Canada, test reports from November 1, 1985 to June 30, 1998; last data reported to LCDC for the period ended August 28, 1998. . 12

Table 5a Cumulative number of positive HIV test reports by province/territory and gender, Canada, test reports from November 1, 1985 to June 30, 1998; last data reported to LCDC for the period ended August 28, 1998. 13

Table 5b Number of positive HIV test reports by province/territory and year of test, Canada, test reports from November 1, 1985 to June 30, 1998; last data reported to LCDC for the period ended August 28, 1998 14

Table 6 Number of positive HIV test reports by exposure category and province/territory, Canada, test reports from January 1, 1998 to June 30, 1998; last data reported to LCDC for the period ended August 28, 1998. 15

SECTION II
AIDS IN CANADA, AIDS SURVEILLANCE TO JUNE 30, 1998 16

Table 7 Number of AIDS cases reported, by year of diagnosis, Canada, cases diagnosed to June 30, 1998; last data reported to LCDC for the period ended August 28, 1998 17

Figure 1 Number of AIDS cases reported to LCDC and adjusted for delays in reporting, by year of diagnosis, Canada, cases diagnosed to June 30, 1998; last data reported to LCDC for the period ended August 28, 1998 18

Table 8 Number of AIDS cases reported, cumulative total, by year of diagnosis, by gender, adults (15 years old and over), Canada, cases diagnosed to June 30, 1998; last data reported to LCDC for the period ended August 28, 1998. 19

Table 9 Number of AIDS cases reported and adjusted for reporting delay, by age group and gender, Canada, cases diagnosed to June 30, 1998; last data reported to LCDC for the period ended August 28, 1998 20

Table 10a Number of AIDS cases reported by age group and year of diagnosis, males, Canada, cases diagnosed to June 30, 1998; last data reported to LCDC for the period ended August 28, 1998. 21

Table 10b Number of AIDS cases reported by age group and year of diagnosis, females, Canada, cases diagnosed to June 30, 1998; last data reported to LCDC for the period ended August 28, 1998. 22

Table 10c Number of AIDS cases reported by age group and year of diagnosis, Canada, total cases diagnosed to June 30, 1998; last data reported to LCDC for the period ended August 28, 1998. 23

Table 11a Number of AIDS cases and percentage distribution by exposure category and year of diagnosis, adult males (15 years old and over), Canada, cases diagnosed to June 30, 1998; last data reported to LCDC for the period ended August 28, 1998. . 24

Table 11b Number of AIDS cases and percentage distribution by exposure category and year of diagnosis, adult females (15 years old and over), Canada, cases diagnosed to June 30, 1998; last data reported to LCDC for the period ended August 28, 1998. . 25

Table 11c Number of AIDS cases and percentage distribution by exposure category and year of diagnosis, adults (15 years old and over), Canada, cases diagnosed to June 30, 1998; last data reported to LCDC for the period ended August 28, 1998. . 26

Table 11d Number of AIDS cases and percentage distribution by exposure category and year of diagnosis, pediatric cases (less than 15 years old), Canada, cases diagnosed to June 30, 1998; last data reported to LCDC for the period ended August 28, 1998. . 27

Table 11e Number of AIDS cases by exposure category and age group, Canada, cases diagnosed to June 30, 1998; last data reported to LCDC for the period ended August 28, 1998. 28

Table 12a Number of AIDS cases reported by province/territory and gender, and ratio males: females, Canada, cases diagnosed to June 30, 1998; last data reported to LCDC for the period ended August 28, 1998. 29

Table 12b Number of AIDS cases reported by province/territory, year of diagnosis, males, Canada, cases diagnosed to June 30, 1998; last data reported to LCDC for the period ended August 28, 1998. 30

Table 12c Number of AIDS cases reported by province/territory, year of diagnosis, females, Canada, cases diagnosed to June 30, 1998; last data reported to LCDC for the period ended August 28, 1998. 31

Table 12d Number of AIDS cases reported by province/territory, year of diagnosis, all ages, diagnosed to June 30, 1998; last data reported to LCDC for the period ended August 28, 1998.. 32

Table 13 Number of AIDS cases and percentage distribution, by exposure category, by province/territory, Canada, cases diagnosed to June 30, 1998; last data reported to LCDC for the period ended August 28, 1998. 33

Table 14 Number of deaths reported and cumulative total, by year of death, for adults (15 years and over), pediatric cases (less than 15 years old) and population, Canada, cases diagnosed to June 30, 1998; last data reported to LCDC for the period ended August 28, 1998. 34

SECTION III
A REVIEW OF HIV/AIDS SURVEILLANCE, TREND ANALYSIS AND PROJECTIONS IN CANADA: 1982-1998 35

Figure 2. 1986 extrapolation of AIDS cases for 1987-90 compared to actually reported cases.. 36

Figure 3. Effect of 1987 revision of AIDS case definition on trend 36

Figure 4. Three projections made in mid-1980's compared with actually reported AIDS incidence 37

Figure 5. AIDS incidence and incidence of AIDS related deaths in the U.S.. 39

Table 15 Number of AIDS cases diagnosed in 1989-1992 estimated by reporting delay adjustment performed in 1993 compared with what have been observed by 1997 40

References 42

SECTION IV
INTERNATIONAL AIDS STATISTICS 44

Appendix 1 Instructions for using FAXlink 50

Appendix 2 Data Sources 51

Commentary on Surveillance of HIV Positive Test Reports and AIDS Diagnoses

HIV Positive Test Reports

This report has been produced on the basis of non-nominal, confidential information regarding positive HIV test reports provided by all provinces and territories of Canada.

The data contained in this report provide information ONLY on those tested. Therefore, the data do not represent the total number of people who are infected with HIV in Canada and do not provide information on the untested population. Data reported for HIV positive tests may change as an artifact of testing patterns (who comes forward for testing and when), improved duplicate removal, and/or a reporting delay for the more recent time periods.

Repeat tests for the same individual who is HIV positive, also called duplicate positive HIV tests, result in an overestimate of the number of positive HIV tests. Removing duplicate positive HIV tests is difficult because HIV reporting is non-nominal in some jurisdictions (no names are reported). In spite of this difficulty, duplicate tests have been removed to the degree possible by each province and territory to give as accurate a picture as possible of the number of new positive HIV tested individuals.

Where possible, provinces and territories review positive HIV test report data periodically to assess the presence of duplicate test reports by the same individual. This review results in revisions to the provincial and territorial number of positive HIV test reports. As such, data on positive HIV test reports are continually being updated to best reflect the known number of individuals testing positive for HIV.

Furthermore, in the Province of Quebec, the actual number of positive HIV test reports is based on the minimum number of HIV positive individuals. The number of HIV positive tests for Quebec is higher, but for the majority of the remaining Quebec reports, duplicates could not be ruled out.

In the six month period from January to June 1998, there were 877 positive HIV tests (with duplicates removed to the degree possible) reported to LCDC by August 28, 1998. The number of positive HIV test reports in 1998 excludes all data from British Columbia, Alberta and Manitoba.

There were 2,556 positive HIV test reports reported to LCDC for 1997, and for 1996 there were 2,784 positive HIV test reports. In 1995, 3,000 positive HIV tests were reported from all provinces and territories. In the period 1985-1994, a cumulative total of 32,747 positive HIV tests were reported to LCDC.

Duplicate test removal has varied for the 1985-94 period. Therefore, comparisons of annual rates may not be necessarily valid. However we have compared proportions for the time periods 1985-1994, 1995, 1996 and 1997. These comparisons assume that the rate of duplicate testing does not differ significantly over time periods and within variables.

Proportion of positive HIV test reports among women

Women account for 13.0% of positive HIV test reports for which gender is known, and the proportion of positive HIV test reports among women is increasing. In the first six months of 1998, 20.5% of positive HIV test reports (for those positive test reports for which gender was reported) were among women. In 1995 women accounted for 19.4% of positive HIV test reports and in 1985-1994 they accounted for 10.1%.

Proportion of positive HIV test reports among heterosexuals, injection drug users, and men who have sex with men

There is an increasing trend in positive HIV reports attributable to heterosexual contact. In the first six months of 1998, the exposure category heterosexual contact accounted for 24.7% of adult positive HIV test reports (for those positive HIV test reports for which exposure category and age were known). This proportion was 7.5% for the years 1985-1994.

The proportion of positive HIV test reports is also increasing for injection drug use. The proportion of positive HIV test reports accounted for by injection drug users increased from 8.6% (of all adult positive HIV test reports for which exposure category and age were known) for the years 1985-1994; 30.5% for 1995, and 34.6% for 1997. In the first six months of 1998, the proportion of HIV positive test reports attributed to injection drug users was 16.2% of all positive HIV test reports for which exposure category was reported. It is too early to determine whether this relative decline in HIV positive reports attributed to IDU is an artifact or is true; continued monitoring would define the real trend.

In contrast, men who have sex with men are accounting for a decreasing proportion of the positive HIV test reports. Men who have sex with men accounted for 75.3% of positive HIV test reports (for which exposure category was indicated) in the period 1985-1994, and decreased to 44.7% in 1995, and 37.4% in 1997.

The above proportions should be viewed with caution because of a high number of reports with no identified risk or gender indicated and the impact of changes in patterns of those coming forward for HIV testing.

AIDS Incidence

There have been a cumulative total of 15,935 AIDS cases in Canada diagnosed prior to June 30, 1998, and reported to the Bureau of HIV/AIDS, STD and TB, LCDC, by August 28, 1998. Of these, 15,752 were cases diagnosed among adults and 181 among children (< 15 years old). There were 11,589 AIDS-related deaths reported (73.6% of all reported AIDS cases), although this is likely an underestimate due to reporting delays and an unknown degree of underreporting.

Proportion of reported AIDS cases among women

From the beginning of the epidemic to the end of the current reporting period, 7.4% of all AIDS cases reported were among women. In the first six months of 1998, the percentage of cases diagnosed among women was 12.4%.

TECHNICAL NOTES

HIV Positive Test Reports and AIDS Case Reports in Canada

1. Exposure Category

HIV and AIDS cases are assigned to a single exposure category, according to an agreed hierarchy of modes of exposure (risk factors). If more than one mode is reported with a case, the case is classified in the exposure category that is listed first in the hierarchy. For example, persons who are injecting drug users may also be at risk of HIV infection through heterosexual activity. However, injection drug use (IDU) is accepted as the higher risk activity. Such cases are assigned to the IDU exposure category, even though they may be sexually active.

The only exception to this is men who are reported to have had sex with men and have injected drugs. Such cases are classified in the combined exposure category Men who have sex with men and injecting drug use (MSM/IDU).

Cases classified as Men who have sex with men (MSM) include men who report either homosexual or bisexual contact. Heterosexual contact cases are broken down further into two sub-categories: (a) persons who were born in a pattern II country; and (b) persons who report heterosexual contact with a person who is either HIV-infected or who is at increased risk for HIV infection (for example, an injection drug user). Blood/Blood Products are now broken down into Recipient of Blood and Recipient of Clotting Factor exposure categories. Prior to 1998, it was not possible to report positive HIV test reports by these sub-categories, though future surveillance reports will continue to reflect this change.

If heterosexual contact is the only risk factor reported by the case, and nothing is known about the mode of exposure for the heterosexual partner, the case would be classified as no identified risk-heterosexual (NIR)-Heterosexual.

"No identified risk" (NIR) cases are persons for whom the history is unknown or there is no reported history of exposure to HIV through any of the modes listed in the hierarchy after questioning regarding mode of transmission. This exposure category may include cases that are currently being followed-up by local health department officials; persons whose exposure history is incomplete because they died, or declined to be interviewed, or were lost to follow-up; and persons who cannot identify any mode of transmission.

In certain provinces, it is not possible to report information regarding exposure category. The exposure category thus is classified as Not Reported.

2. Heterosexual Contact

a) Pattern II countries are countries in which the predominant means of transmission is heterosexual contact.

b) Persons reporting heterosexual contact with person(s) at risk of HIV infection or who are infected with HIV.

3. Occupational Exposure

Full information regarding this female occupational exposure case is in the Canada Communicable Disease Report 1992;18:102-03.

Percentages may not total to 100 due to rounding.

SECTION I

HIV in Canada
HIV Positive Test Reports in Canada

Table 1. Number of positive HIV test reports by year of test, Canada, test reports from November 1, 1985 to June 30, 1998; last data reported to LCDC for the period ended August 28, 1998

Year of Test	As Reported to LCDC
1985-1994	32,747
1995	3,000
1996	2,784
1997	2,556
1998[1] (June 30)	877
Total	**41,964**

[1]HIV data for 1998 form Alberta, British Columbia and Manitoba are not included.

Source: Health Canada. *HIV and AIDS in Canada. Surveillance report to June 30, 1998.* Division of HIV/AIDS Surveillance, Bureau of HIV/AIDS, STD, and TB, LCDC, HPB, Health Canada, November 1998.

Table 2. Cumulative number of positive HIV test reports among pediatric and adult cases, by gender, Canada, test reports from November 1, 1985 to June 30, 1998; last data reported to LCDC for the period ended August 28, 1998

Gender	Number of Tests Reported	%[1]
Pediatrics (< 15 years)[2,3]	682	1.6
Males	304	59.4
Females	208	40.6
Gender Not Reported[4,6]	170	
Adults (≥ 15 years)[2]	41,282	98.4
Males	25,359	87.4
Females	3,640	12.6
Gender Not Reported[4,5]	12,283	
Total[6]	**41,964**	**100.0**

1 Percentages based on total number minus those reports for which gender was unknown.
2 Age groupings reported by Alberta differ from those used in this report. Therefore, for Alberta data in this report, cases in the 0-9 age group category were reassigned to the pediatric category and those in the 10-19 age group category were reassigned to the adult category.
3 Quebec data were based on positive serology results for cases > 2 years of age only.
4 HIV data from Alberta and Prince Edward Island are not available by age group and gender, so are classified as Gender Not Reported for this reporting format only.
5 HIV data from British Columbia were not available by gender and age group for the period 1985-94. As a result, they are listed as Gender Not Reported for this reporting format only.
6 HIV data for 1998 from Alberta, British Columbia and Manitoba are not included.

Source: Health Canada. *HIV and AIDS in Canada. Surveillance report to June 30, 1998.* Division of HIV/AIDS Surveillance, Bureau of HIV/AIDS, STD, and TB, LCDC, HPB, Health Canada, November 1998.

Table 3a. Number of positive HIV test reports by age group and year of test, males, Canada, test reports from November 1, 1985 to June 30, 1998; last data reported to LCDC for the period ended August 28, 1998

Males	Year of Test						
Age Group	1985-1994[2]	1995	1996	1997	1998 (June 30)	Total n	%[1]
Pediatric							
< 15 yrs [3]	201	29	33	25	16	304	1.3
Adults	17,097	2,127	1,906	1,726	630	23,486	98.7
15 to 19 yrs	207	8	22	8	3	248	1.0
20 to 29 yrs	5,141	475	365	289	106	6,376	26.8
30 to 39 yrs	7,245	967	894	802	281	10,189	42.8
40 to 49 yrs	3,309	485	422	419	171	4,806	20.2
50 yrs +	1,195	192	203	208	69	1,867	7.8
Age Group Not Reported	1,750	43	39	26	15	1,873	
Total [4,5]	**19,048**	**2,199**	**1,978**	**1,777**	**661**	**25,663**	**100.0**

[1] Percentages based on total number minus those reports for which age group was unknown or not reported.
[2] HIV data from British Columbia are not available by gender and age group for the period 1985-94. As a result, they are listed as Gender Not Reported for this reporting format only.
[3] Quebec data are based on positive serology results for cases > 2 years of age only.
[4] HIV data from Alberta and Prince Edward Island are not available by age group and gender.
[5] HIV data for 1998 from Alberta, British Columbia and Manitoba are not included.

Source: Health Canada. *HIV and AIDS in Canada. Surveillance report to June 30, 1998.* Division of HIV/AIDS Surveillance, Bureau of HIV/AIDS, Surveillance, Bureau of HIV/AIDS, STD, and TB, LCDC, HPB, Health Canada, November 1998.

Table 3b. Number of positive HIV test reports by age group and year of test, females, Canada, test reports from November 1, 1985 to June 30, 1998; last data reported to LCDC for the period ended August 28, 1998

Females	Year of Test						
Age Group	1985-1994[2]	1995	1996	1997	1998 (June 30)	Total n	%[1]
Pediatric							
< 15 yrs [3]	95	30	42	24	17	208	5.6
Adults	1,934	492	487	430	150	3,493	94.4
15 to 19 yrs	85	15	12	14	7	133	3.6
20 to 29 yrs	776	183	169	144	51	1,323	35.7
30 to 39 yrs	689	222	204	183	57	1,355	36.6
40 to 49 yrs	229	51	76	63	25	444	12.0
50 yrs +	155	21	26	26	10	238	6.4
Age Group Not Reported	115	6	13	10	3	147	
Total [4,5]	**2,144**	**528**	**542**	**464**	**170**	**3,848**	**100.0**

[1] Percentages based on total number minus those reports for which age group was unknown or not reported.
[2] HIV data from British Columbia are not available by gender and age group for the period 1985-94. As a result, they are listed as Gender Not Reported for this reporting format only.
[3] Quebec data are based on positive serology results for cases > 2 years of age only.
[4] HIV data from Alberta and Prince Edward Island are not available by age group and gender.
[5] HIV data for 1998 from Alberta, British Columbia and Manitoba are not included.

Source: Health Canada. *HIV and AIDS in Canada Surveillance report to June 30 30, 1998*. Division of HIV/AIDS, STD, and TB, LCDC HPB, Health Canada, November 1998.

Table 3c. Number of positive HIV test reports by age group and year of test, Canada, test reports from November 1, 1985 to June 30, 1998; last data reported to LCDC for the period ended August 28, 1998

	Year of Test						
Age Group	**1985-1994**	**1995**	**1996**	**1997**	**1998 (June 30)**	**Total n**	**%[1]**
Pediatric							
< 15 yrs [2,3]	419	74	87	66	36	682	1.8
Adults	28,078	2,838	2,626	2,421	794	36,757	98.2
15 to 19 yrs [2]	447	28	39	32	10	556	1.5
20 to 29 yrs	8,772	714	593	491	159	10,729	28.7
30 to 39 yrs	11,659	1,288	1,197	1,086	344	15,574	41.6
40 to 49 yrs	5,233	574	550	547	201	7,105	19.0
50 yrs +	1,967	234	247	265	80	2,793	7.5
Age Group Not Reported	4,250	88	71	69	47	4,525	
Total [4,5]	**32,747**	**3,000**	**2,784**	**2,556**	**877**	**41,964**	**100.0**

[1] Percentages based on total number minus those reports for which age group was unknown or not reported.
[2] Age groupings reported by Alberta differ from those used in this report. Therefore, for Alberta data in this report, cases in the 0-9 age group category were reassigned to the pediatric category and those in the 10-19 age group category were reassigned to the adult category.
[3] Quebec data are based on positive serology results for cases > 2 years of age only.
[4] HIV data from Prince Edward Island are not available by age group, so are classified as Age Group Not Reported for this reporting format only.
[5] HIV data for 1998 from Alberta, British Columbia and Manitoba are not included.

Source: Health Canada. *HIV and AIDS in Canada. Surveillance report to June 30, 1998.* Division of HIV/AIDS Surveillance, Bureau of HIV/AIDS, STD, and TB, LCDC, HPB, Health Canada, November 1998.

Table 4a. Number of positive HIV test reports by exposure category and year of test, adult males (15 years old and over), Canada, test reports from November 1, 1985 to June 30, 1998; last data reported to LCDC for the period ended August 28, 1998

Males	Year of Test											
Exposure Category	1985-1994[5]		1995		1996		1997		1998 (June 30)		Total	
	n	%	n	%	n	%	n	%	n	%	n	%[1]
Men who have Sex with Men	7,632	82.1	664	55.4	579	51.4	470	47.8	142	64.5	9,487	74.0
MSM/IDU	211	2.3	52	4.3	41	3.6	30	3.0	7	3.2	341	2.7
Injection Drug Use	534	5.7	292	24.4	331	29.4	305	31.0	27	12.3	1,489	11.6
Heterosexual Contact/ Endemic [4]	368	4.0	141	11.8	143	12.7	147	14.9			799	6.2
a) origin in a pattern II country	n/a		n/a		n/a		n/a		7	3.2	7	0.1
b) sexual contact with a person at risk	n/a		n/a		n/a		n/a		32	14.5	31	0.2
Blood/Blood Products [4]	412	4.4	16	1.3	11	1.0	8	0.8	0	0.0	447	3.5
Recipient of Blood	n/a		n/a		n/a		n/a		1	0.5	1	0.0
Recipient of Clotting Factor	n/a		n/a		n/a		n/a		1	0.5	1	0.0
Other	139	1.5	33	2.8	22	2.0	24	2.4	3	1.4	221	1.7
No Identified Risk Factor	5620		616		429		414		194		7,273	
Exposure Category Not Reported [2]	4585		466		493		493		231		6,268	
Total [3,6,7]	**19,501**	**100.0**	**2,280**	**100.0**	**2,049**	**100.0**	**1,891**	**100.0**	**645**	**100.0**	**26,366**	**100.0**

1 Percentages based on total number minus those reports for which exposure category was unknown or not reported.
2 In Quebec the information on exposure categories of individuals who have tested positive for HIV is not available.
3 HIV data for 1998 were not available from Alberta, British Columbia and Manitoba at time of printing.
4 Prior to 1998, blood/blood products and heterosexual contact/endemic were combined exposure categories, but have been disaggregated where possible for reporting purposes in 1998.
5 For the time period of 1985-1994, < 15 age group is combined with adult for British Columbia and Manitoba for this reporting format only.
6 HIV data from Alberta are not available by age group and gender. Therefore, pediatric data are included in adult data for this reporting format only.
7 HIV data for 1998 from Alberta, British Columbia and Manitoba are not included.

Source: Health Canada. *HIV and AIDS in Canada. Surveillance report to June 30, 1998.* Division of HIV/AIDS Surveillance, Bureau of HIV/AIDS, STD, and TB, LCDC, HPB, Health Canada, November 1998.

Table 4b. Number of HIV positive test reports by exposure category and year of test, adult females (15 years old and over), Canada, test reports from November 1, 1985 to June 30, 1998; last data reported to LCDC for the period ended August 28, 1998

Females	Year of Test											
Exposure Category	1985-1994[5]		1995		1996		1997		1998 (June 30)		Total	
	n	%	n	%	n	%	n	%	n	%	n	%[1]
Injection Drug Use	197	25.7	158	55.1	160	52.6	123	45.2	12	31.6	650	39.0
Heterosexual Contact/ Endemic [4]	451	58.9	103	35.9	131	43.1	124	45.6			809	48.5
a) origin in a pattern II country	n/a		n/a		n/a		n/a		8	21.1	8	0.5
b) sexual contact with a person at risk	n/a		n/a		n/a		n/a		15	39.5	15	0.9
Blood/Blood Products [4]	104	13.6	11	3.8	3	1.0	5	1.8			123	7.4
Recipient of Blood	n/a		n/a		n/a		n/a		3	7.9	3	0.2
Recipient of Clotting Factor	n/a		n/a		n/a		n/a		0	0.0	0	0.0
Other	14	1.8	15	5.2	10	3.3	20	7.4	0	0.0	59	3.5
No Identified Risk Factor	600		127		88		94		49		958	
Exposure Category Not Reported [2]	800		124		148		130		66		1,268	
Total [3,6,7]	**2,166**	**100.0**	**538**	**100.0**	**540**	**100.0**	**496**	**100.0**	**153**	**100.0**	**3,893**	**100.0**

[1] Percentages based on total number minus those reports for which exposure category was unknown or not reported.
[2] In Quebec, information on exposure categories of individuals who have tested positive for HIV is not available.
[3] HIV data for 1998 were not available from Alberta, British Columbia and Manitoba at time of printing.
[4] Prior to 1998, blood/blood products and heterosexual contact/endemic were combined exposure categories, but have been disaggregated where possible for reporting purposes in 1998.
[5] For the time period of 1985-1994, < 15 age group is combined with adult for British Columbia and Manitoba for this reporting format only.
[6] HIV data from Alberta are not available by age group and gender. Therefore, pediatric data are included in adult data for this reporting format only.
[7] HIV data for 1998 from Alberta, British Columbia and Manitoba are not included.

Source: Health Canada. *HIV and AIDS in Canada. Surveillance report to June 30, 1998.* Division of HIV/AIDS Surveillance, Bureau of HIV/AIDS, STD, and TB, LCDC, HPB, Health Canada, November 1998.

Table 4c. Number of positive HIV test reports by exposure category and year of test, adults (15 years old and over), Canada, test reports from November 1, 1985 to June 30, 1998; last data reported to LCDC for the period ended August 28, 1998

Adults (≥ 15 years)	Year of Test											
Exposure Category	1985-1994[6]		1995		1996		1997		1998 (June 30)		Total	
	n	%	n	%	n	%	n	%	n	%	n	%[1]
Men who have Sex with Men	11,522	75.3	665	44.5	579	40.2	471	37.1	142	54.6	13,379	67.7
MSM/IDU	316	2.1	54	3.6	41	2.8	30	2.4	7	2.7	448	2.3
Injection Drug Use	1,322	8.6	455	30.4	497	34.5	434	34.2	40	15.4	2,748	13.9
Heterosexual Contact/ Endemic [5]	1,150	7.5	247	16.5	274	19.0	275	21.7			1,946	9.8
a) origin in a pattern II country	n/a		n/a		n/a		n/a		16	6.2	15	0.1
b) sexual contact with a person at risk	n/a		n/a		n/a		n/a		47	18.1	46	0.2
Blood/Blood Products [5]	677	4.4	27	1.8	16	1.1	15	1.2			735	3.7
Recipient of Blood	n/a		n/a		n/a		n/a		4	1.5	4	0.0
Recipient of Clotting Factor	n/a		n/a		n/a		n/a		1	0.4	1	0.0
Other	316	2.1	48	3.2	32	2.2	44	3.5	3	1.2	443	2.2
No Identified Risk Factor	10,420		826		606		603		284		12,739	
Exposure Category Not Reported [2,3]	6,706		617		660		630		297		8,910	
Total [4,7]	**32,429**	**100.0**	**2,939**	**100.0**	**2,705**	**100.0**	**2,502**	**100.0**	**841**	**100.0**	**41,416**	**100.0**

[1] Percentages based on total number minus those reports for which exposure category was unknown or not reported.
[2] In Quebec, information on exposure categories of individuals who have tested positive for HIV is not available.
[3] HIV data for 1997 from Prince Edward Island are not available by exposure category. Therefore, these data are reported as Exposure Category Not Reported for reporting purposes.
[4] HIV data for 1998 from Alberta, British Columbia and Manitoba are not included.
[5] Prior to 1998, blood/blood products and heterosexual contact/endemic were combined exposure categories, but have been disaggregated where possible for reporting purposes in 1998.
[6] For the time period of 1985-1994, < 15 age group is combined with adult for British Columbia and Manitoba.
[7] HIV data from Alberta are not available by age group and exposure category. Therefore, pediatric data are included in adult data for this reporting format only.

Source: Health Canada. *HIV and AIDS in Canada. Surveillance report to June 30, 1998.* Division of HIV/AIDS Surveillance, Bureau of HIV/AIDS, STD, and TB, LCDC, HPB, Health Canada, November 1998.

Table 4d. Number of positive HIV test reports by exposure category and year of test, pediatric tests (less than 15 years old), Canada, test reports from November 1, 1985 to June 30, 1998; last data reported to LCDC for the period ended August 28, 1998

Pediatric (< 15 years)	Year of Test											
Exposure Category	1985-1994[5,7]		1995		1996		1997		1998 (June 30)		Total	
	n	%	n	%	n	%	n	%	n	%	n	%[1]
Blood/Blood Products [6]	65	36.5	1	2.8	1	2.5	0	0.0	0	0.0	67	23.3
Recipient of Blood	n/a		n/a		n/a		n/a		1	5.9	1	0.3
Recipient of Clotting Factor	n/a		n/a		n/a		n/a		0	0.0	0	0.0
Perinatal Transmission	104	58.4	31	86.1	38	95.0	12	75.0	16	94.1	201	70.0
Other	9	5.1	4	11.1	1	2.5	4	25.0	0	0.0	18	6.3
No Identified Risk Factor	103		19		29		34		9		194	
Exposure Category Not Reported [3]	37		6		10		4		10		67	
Total [2,8,9]	**318**	**100.0**	**61**	**100.0**	**79**	**100.0**	**54**	**100.0**	**36**	**100.0**	**548**	**100.0**

1 Percentages based on total number minus those reports for which exposure category was unknown or not reported.
2 Quebec data are based on positive serology results for cases > 2 years of age only.
3 In Quebec the information on exposure categories of individuals who have tested positive for HIV is not available.
4 1996 data for Manitoba are available as No Identified Risk only.
5 1985-94 data for New Brunswick and Saskatchewan are available as No Identified Risk factor only.
6 Prior to 1998, the two categories for blood and blood products were combined exposure categories, but have been disaggregated where possible for reporting purposes.
7 For the time period of 1985-1994, < 15 age group is combined with adult for British Columbia and Manitoba.
8 HIV data for 1998 from Alberta, British Columbia and Manitoba are not included.
9 HIV data from Alberta are not available by age group and exposure category. Therefore pediatric data are included in adult data for this reporting format only.

Source: Health Canada. *HIV and AIDS in Canada. Surveillance report to June 30, 1998.* Division of HIV/AIDS Surveillance, Bureau of HIV/AIDS, STD, and TB, LCDC, HPB, Health Canada, November 1998.

Table 5a. Cumulative number of positive HIV test reports by province/territory and gender, Canada, test reports from November 1, 1985 to June 30, 1998; last data reported to LCDC for the period ended August 28, 1998

Province/Territory	Number of Positive HIV Tests		Ratio [1] Males:Females
	Males	Females	
British Columbia	7,629	1,002	8:1
Yukon	18	6	3:1
Alberta	2,620	356	7:1
N.W.T.	26	6	4:1
Saskatchewan	211	62	3:1
Manitoba	557	75	7:1
Ontario	16,229	1,850	9:1
Quebec	6,300	1,295	5:1
New Brunswick	202	25	8:1
P.E.I. and N.S.	454	60	8:1
Nfld.	143	40	4:1
Total [2,3]	**34,389**	**4,777**	**7:1**

[1] Ratio based on those reports where gender is reported.
[2] HIV data for 1998 from Alberta, British Columbia and Manitoba are not included.
[3] Totals differ from those presented in other reporting formats due to availability of positive HIV test reports by gender.

Source: Health Canada. *HIV and AIDS in Canada. Surveillance report to June 30, 1998.* Division of HIV/AIDS Surveillance, Bureau of HIV/AIDS, STD, and TB, LCDC, HPB, Health Canada, November 1998.

Table 5b. Number of positive HIV test reports by province/territory and year of test, Canada, test reports from November 1, 1985 to June 30, 1998; last data reported to LCDC for the period ended August 28, 1998

Province/Territory	Year of Test						
	1985-1994	1995	1996	1997	1998 (June 30)	Total n	%[1]
British Columbia[2]	7,024	690	714	568	n/a	8,996	21.4
Yukon	14	1	4	2	3	24	0.1
Alberta	2,402	179	178	217	n/a	2,976	7.1
N.W.T.	28	0	2	1	1	32	0.1
Saskatchewan	280	28	24	42	16	390	0.9
Manitoba	469	51	54	58	n/a	632	1.5
Ontario	15,022	1,369	1,082	987	528	18,988	45.2
Quebec[3]	6,740	623	670	633	307	8,973	21.4
New Brunswick[4]	189	11	12	6	9	227	0.5
P.E.I. and N.S.	422	41	34	35	11	543	1.3
Nfld.	157	7	10	7	2	183	0.4
Total[5]	**32,747**	**3,000**	**2,784**	**2,556**	**877**	**41,964**	**100.0**

[1] Percentages based on missing 1998 data from Alberta, British Columbia and Manitoba.

[2] HIV reports for B.C. prior to 1995 will differ from those previously published because B.C. has implemented an automated process to remove identifiable duplicate tests for the same individual contained in the data. After 1995, duplicate removal was further enhanced with physician call back; as a result, data now more accurately represent people with new positive tests rather than tests performed by the laboratory. Therefore, apparent declines between 1994 and 1995 are artifactual.

[3] HIV data for Quebec differ from those previously published. Additional positive HIV test reports have been included. An improved duplicate removal process has enabled more test reports to be included (data for these test reports were not previously reported as duplicates could not be ruled out).

[4] HIV data for New Brunswick differ from those previously published. The numbers have declined due to the ruling out of duplicate tests from other provinces.

[5] HIV data for 1998 from Alberta, British Columbia and Manitoba are not included.

Source: Health Canada. *HIV and AIDS in Canada. Surveillance report to June 30, 1998.* Division of HIV/AIDS Surveillance, Bureau of HIV/AIDS, STD, and TB, LCDC, HPB, Health Canada, November 1998.

Table 6. Number of positive HIV test reports by exposure category and province/territory, Canada, test reports from January 1, 1998 to June 30, 1998; last data reported to LCDC for the period ended August 28, 1998

	Province/Territory												
Exposure Category	B.C.	Yukon	Alberta	N.W.T.	Sask.	Man.	Ont.	Que.	N.B.	P.E.I. & N.S.	Nfld.	Total n	% [1]
Men who have Sex with Men	n/a	3	n/a	0	3	n/a	125	n/a	5	5	1	142	51.3
MSM/IDU	n/a	0	n/a	1	1	n/a	4	n/a	0	1	0	7	2.5
Injection Drug Use	n/a	0	n/a	0	5	n/a	32	n/a	2	1	0	40	14.4
Heterosexual Contact a) origin in a pattern II country	n/a	0	n/a	0	1	n/a	14	n/a	0	1	0	16	5.8
b) sexual contact with a person at risk	n/a	0	n/a	0	3	n/a	39	n/a	1	3	1	47	17.0
Recipient of Blood	n/a	0	n/a	0	0	n/a	5	n/a	0	0	0	5	1.8
Recipient of Clotting Factor	n/a	0	n/a	0	0	n/a	1	n/a	0	0	0	1	0.4
Perinatal Transmission	n/a	0	n/a	0	0	n/a	16	n/a	0	0	0	16	5.8
Other	n/a	0	n/a	0	0	n/a	3	n/a	0	0	0	3	1.1
No Identified Risk Factor	n/a	0	n/a	0	3	n/a	289	n/a	1	0	0	293	
Exposure Category Not Reported [2]	n/a	0	n/a	0	0	n/a	0	307	0	0	0	307	
Total [3]	**n/a**	**3**	**n/a**	**1**	**16**	**n/a**	**528**	**307**	**9**	**11**	**2**	**877**	**100**

[1] Percentages based on total number minus those reports for which exposure category was unknown.
[2] In Quebec the information on exposure categories of individuals who have tested positive for HIV is not available.
[3] HIV data for 1998 from Alberta, British Columbia and Manitoba are not included.

Source: Health Canada. *HIV and AIDS in Canada. Surveillance report to June 30, 1998.* Division of HIV/AIDS Surveillance, Bureau of HIV/AIDS, STD, and TB, LCDC, HPB, Health Canada, November 1998.

SECTION II

AIDS in Canada: AIDS Surveillance to June 30, 1998.

This section of HIV and AIDS in Canada replaces the previous AIDS in Canada quarterly publication and covers the period from the beginning of the epidemic to June 30, 1998.

In this report, all AIDS cases were diagnosed to June 30, 1998. It should be noted that not all cases are received by Health Canada by the last day of the reference period. We officially allow an eight-week period after the end of the period to give the provinces and territories time to send LCDC their cases. However, we do accept cases from the provinces and territories until we have to close the file to prepare the Surveillance Report, which is published twelve weeks after the end of the period. All cases received subsequently are included in the Surveillance Report for the next period. Therefore, the table titles in this publication indicate that all the AIDS cases included were diagnosed on or before June 30, 1998, and were received by Health Canada by August 28, 1998.

Definition of Terminology

Cumulative AIDS Cases - This is the total number of all AIDS cases which have occurred in the population, including those who have not been reported as having died, since the very beginning of the epidemic. This number is not directly available from the AIDS Case Reporting Surveillance System due to reporting delay and under-reporting.

Cumulative Reported AIDS Cases - This is the total number of all AIDS cases which have occurred in the population, including those who have died, since the very beginning of the epidemic as documented in the AIDS Case Reporting Surveillance System by a reference time. In this report, the reference time is June 30, 1998 and the cumulative number of reported AIDS cases in Canada is 15,935. The cumulative number of reported AIDS cases is only a proportion of the cumulative AIDS cases.

Canadian Surveillance Definition of AIDS - This definition is used as the standard inclusion/exclusion criterion to decide if a case report is qualified to be entered in the AIDS surveillance database. It requires a positive HIV test result and the onset of one or more specifically defined clinical diseases that characterize a weakened immune system. Details can be found in CCDR 1993; 19:116-17.

Year/Month/Day of AIDS Diagnosis - This is the year/month/day of the earliest onset of the clinical diseases as listed in the Canadian Surveillance Definition of AIDS based on the physician's report for an HIV-infected patient. If multiple diseases have been diagnosed at different times, the earliest year/month/day will be used as the date of AIDS diagnosis in the AIDS surveillance database at the Laboratory Centre for Disease Control (LCDC).

Year/Month/Day of AIDS Reporting - This is the year/month/day when a diagnosed AIDS case is entered into the computerized AIDS surveillance database.

Reporting Delay of AIDS Cases - This is the difference in time between AIDS diagnosis and AIDS reporting. The 15,935 cumulative reported AIDS cases also provide 15,935 measurements on reporting delay of AIDS cases in Canada. Although 50% of the cumulative reported AIDS cases have measured reported delays of less than 9 months after the date of AIDS diagnosis, the longest recorded reporting delay is 13 years.

Unreported AIDS cases - This is the total number of AIDS cases that have been diagnosed but not yet reported. Some of them will be reported in the future due to the reporting delay of AIDS cases and some of them may never be reported.

Total Annual Reported AIDS Cases by Year of Diagnosis - This is the breakdown of the cumulative total of reported AIDS cases according to year of AIDS diagnosis. Because of reporting delays, the total annual numbers of reported AIDS cases by year of diagnosis for recent years include a much higher percentage of unreported cases than those for years in the distant past.

Total Annual Reported AIDS Cases by Year of Report - This is the breakdown of the cumulative total of reported AIDS cases according to year of AIDS report. If there were no reporting delays, this figure would be in agreement with the total annual reported AIDS cases by year of diagnosis. The greater the difference between the annual reported AIDS cases by year of diagnosis and the annual reported AIDS cases by year of report, the greater the problem in reporting delay.

Total Annual AIDS Cases by Year of Diagnosis Adjusted for Reporting Delay - By applying statistical analysis to the 15,935 measurements on reporting delay of AIDS cases, we can then estimate the number of AIDS cases diagnosed in each year that will eventually be reported. This allows us, to a great extent, to estimate the number of unreported AIDS cases and is important for trend interpretation. Trend interpretation is important because there may be changing diagnosis patterns from HIV diagnosis to AIDS diagnosis. However, AIDS cases diagnosed but never reported cannot be recovered by this method.

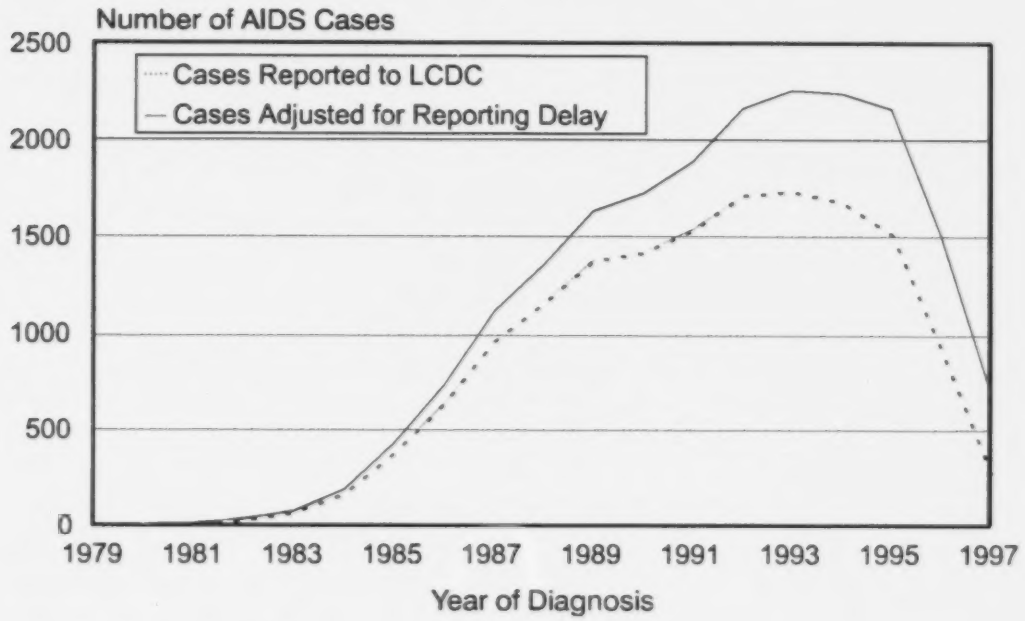
Adjusting for delays in reporting AIDS cases is a regular feature of national HIV and AIDS surveillance reports. In consideration of the provinces that were not able to provide AIDS surveillance data to this report, reporting delay adjustments would have distorted the trend of the number of AIDS diagnoses. This feature is not included here but will return in future reports.

Table 7. Number of AIDS cases reported by year of diagnosis, Canada, cases diagnosed up to June 30, 1998, last data reported to LCDC for the period ending on August 28, 1998

Year of Diagnosis of AIDS	As reported to LCDC
1979	1
1980	4
1981	8
1982	25
1984	68
1983	162
1985	371
1986	632
1987	956
1988	1,154
1989	1,377
1990	1,419
1991	1,535
1992	1,714
1993	1,743
1994	1,689
1995	1,544
1996	984
1997	444
1998	105
Total	15,935

Source: Health Canada. *HIV and AIDS in Canada. Surveillance Report to June 30, 1998.* Division of HIV/AIDS Surveillance, Bureau of HIV/AIDS, STD and TB, LCDC, HPB, Health Canada, November 1998.

Figure 1. Number of AIDS cases reported to LCDC and adjusted for delays in reporting, by year of diagnosis, Canada, cases diagnosed to December 31, 1997; last data reported to LCDC for the period ended February 27, 1998



Source: Health Canada. *HIV and AIDS in Canada. Surveillance Report to June 30, 1998.* Division of HIV/AIDS Surveillance, Bureau of HIV/AIDS, STD and TB, LCDC, HPB, Health Canada, 1998.

Table 8. Number of AIDS cases reported and cumulative total, by year of diagnosis, by gender, adults (15 years and over), Canada, cases diagnosed up to June 30, 1998, last data reported to LCDC for the period ending on August 28, 1998

Year of Diagnosis	Males		Females		Total	
	No. Cases Reported	Cumulative Total	No. Cases Reported	Cumulative Total	No. Cases Reported	Cumulative Total
< 1989	3,142	3,142	190	190	3,332	3,332
1989	1,286	4,428	79	269	1,365	4,697
1990	1,344	5,772	64	333	1,408	6,105
1991	1,427	7,199	95	428	1,522	7,627
1992	1,588	8,787	109	537	1,697	9,324
1993	1,614	10,401	115	652	1,729	11,053
1994	1,545	11,946	126	778	1,671	12,724
1995	1,395	13,341	124	902	1,519	14,243
1996	858	14,199	112	1,014	970	15,213
1997	370	14,569	66	1,080	436	15,649
1998	92	14,661	13	1,093	105	15,754
Total	**14,661**		**1,093**		**15,754**	

Source: Health Canada. *HIV and AIDS in Canada. Surveillance Report to June 30, 1998.* Division of HIV/AIDS Surveillance, Bureau of HIV/AIDS, STD and TB, LCDC, HPB, Health Canada, November 1998.

Table 9. **Number of AIDS cases reported among pediatric and adult cases, by gender, Canada, cases diagnosed to June 30, 1998; last data reported to LCDC for the period ending on August 28, 1998**

Gender	Number of Cases Reported	% of Total
Pediatrics (< 15 yrs)	181	1.1
Males	96	0.6
Females	85	0.5
Adults (≥ 15 yrs)	15,754	98.9
Males	14,661	92.0
Females	1,093	6.9
All Males	14,757	92.6
All Females	1,178	7.4
Total	**15,935**	**100.0**

Source: Health Canada. *HIV and AIDS in Canada. Surveillance Report to June 30, 1998.* Division of HIV/AIDS Surveillance, Bureau of HIV/AIDS, STD and TB, LCDC, HPB, Health Canada, November 1998.

Table 10a. Number of AIDS cases reported by age group and year of diagnosis, males, Canada, cases diagnosed to June 30, 1998; last data reported to LCDC for the period ending on August 28, 1998

Age Group	Year of diagnosis												
	< 1989	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	Total n	%
Pediatrics	24	8	6	7	12	4	8	14	9	4	0	96	0.7
< 1 yr	9	1	1	6	5	1	2	7	5	3	0	40	0.3
1 to 4 yrs	8	4	0	0	3	2	2	4	2	1	0	26	0.2
5 to 9 yrs	4	0	2	0	2	0	2	2	1	0	0	13	0.1
10 to 14 yrs	3	3	3	1	2	1	2	1	1	0	0	17	0.1
Adults	3,142	1,286	1,344	1,427	1,588	1,614	1,545	1,395	858	370	92	14,661	99.3
15 to 19 yrs	17	3	5	3	4	6	3	2	2	1	0	46	0.3
20 to 29 yrs	644	256	251	247	250	236	190	152	91	26	7	2,350	15.9
30 to 39 yrs	1,384	561	596	608	730	709	747	635	384	171	33	6,558	44.4
40 to 49 yrs	772	341	368	412	449	489	437	410	254	112	43	4,087	27.7
50 yrs +	325	125	124	157	155	174	168	196	127	60	9	1,620	11.0
Total	**3,166**	**1,294**	**1,350**	**1,434**	**1,600**	**1,618**	**1,553**	**1,409**	**867**	**374**	**92**	**14,757**	**100.0**

Source: Health Canada. *HIV and AIDS in Canada Surveillance Report to June 30 1998*. Division of HIV/AIDS Surveillance, Bureau of HIV/AIDS, STD and TB, LCDC, HPB, Health Canada, November 1998.

Table 10b. Number of AIDS cases reported by age group and year of diagnosis, females, Canada, cases diagnosed to June 30, 1998; last data reported to LCDC for the period ending on August 28, 1998

Age Group	Year of diagnosis												
	< 1989	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	Total n	%
Pediatrics	25	4	5	6	5	10	10	11	5	4	0	85	7.2
< 1 yr	17	3	2	1	4	4	4	2	3	2	0	42	3.6
1 to 4 yrs	7	1	3	5	1	3	5	5	2	0	0	32	2.7
5 to 9 yrs	0	0	0	0	0	2	1	2	0	2	0	7	0.6
10 to 14 yrs	1	0	0	0	0	1	0	2	0	0	0	4	0.3
Adults	190	79	64	95	109	115	126	124	112	66	13	1,093	92.8
15 to 19 yrs	1	1	1	2	0	0	0	1	2	1	1	10	0.8
20 to 29 yrs	66	24	21	31	36	26	36	30	24	17	2	313	26.6
30 to 39 yrs	55	28	24	33	44	55	41	59	51	22	5	417	35.4
40 to 49 yrs	22	12	6	18	19	17	26	24	28	16	4	192	16.3
50 yrs +	46	14	12	11	10	17	23	10	7	10	1	161	13.7
Total	**215**	**83**	**69**	**101**	**114**	**125**	**136**	**135**	**117**	**70**	**13**	**1,178**	**100.0**

Source: Health Canada. *HIV and AIDS in Canada Surveillance Report to June 30 1998*. Division of HIV/AIDS Surveillance, Bureau of HIV/AIDS, STD and TB, LCDC, HPB, Health Canada, November 1998.

Table 10c. Number of AIDS cases reported by age group and year of diagnosis, Canada, total cases diagnosed to June 30, 1998; last data reported to LCDC for the period ending on August 28, 1998

Age Group	Year of diagnosis												
	< 1989	1989	1590	1991	1992	1993	1994	1995	1996	1997	1998	Total n	%
Pediatrics	49	12	11	13	17	14	18	25	14	8	0	181	1.1
< 1 yr	26	4	3	7	9	5	6	9	8	5	0	82	0.5
1 to 4 yrs	15	5	3	5	4	5	7	9	4	1	0	58	0.4
5 to 9 yrs	4	0	2	0	2	2	3	4	1	2	0	20	0.1
10 to 14 yrs	4	3	3	1	2	2	2	3	1	0	0	21	0.1
Adults	3,332	1,365	1,408	1,522	1,697	1,729	1,671	1,519	970	436	105	15,754	98.9
15 to 19 yrs	18	4	6	5	4	6	3	3	4	2	1	56	0.4
20 to 29 yrs	710	280	272	278	286	262	226	182	115	43	9	2,663	16.7
30 to 39 yrs	1,439	589	620	641	774	764	788	694	435	193	38	6,975	43.8
40 to 49 yrs	794	353	374	430	468	506	463	434	282	128	47	4,279	26.9
50 yrs +	371	139	136	168	165	191	191	206	134	70	10	1,781	11.2
Total	**3,381**	**1,377**	**1,419**	**1,535**	**1,714**	**1,743**	**1,689**	**1,544**	**984**	**444**	**105**	**15,935**	**100.0**

Source: Health Canada. *HIV and AIDS in Canada Surveillance Report to June 30 1998*. Division of HIV/AIDS Surveillance, Bureau of HIV/AIDS, STD and TB, LCDC, HPB, Health Canada, November 1998.

Table 11a. **Number of AIDS cases and percentage distribution by exposure category and year of diagnosis, adults, males (15 years and over), Canada, cases diagnosed to June 30, 1998; last data reported to LCDC for the period ending on August 28, 1998**

Exposure Category	Year of diagnosis																							
	< 1989		1989		1990		1991		1992		1993		1994		1995		1996		1997		1998		Cumulative	
	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%
Men who have Sex with Men	2,629	85.7	1,058	84.9	1,069	83.1	1,120	82.4	1,242	81.6	1,227	78.9	1,168	77.8	1,015	75.7	574	68.4	233	64.7	57	62.6	11,392	80.4
Injection Drug Use	26	0.8	24	1.9	26	2.0	47	3.5	55	3.6	73	4.7	88	5.9	91	6.8	86	10.3	39	10.8	8	8.8	563	4.0
MSM/IDU	111	3.6	52	4.2	60	4.7	65	4.8	77	5.1	89	5.7	97	6.5	76	5.7	51	6.1	19	5.3	3	3.3	700	4.9
Heterosexual Contact																								
a) origin in a pattern II country	121	3.9	34	2.7	38	3.0	37	2.7	45	3.0	61	3.9	44	2.9	43	3.2	47	5.6	25	6.9	8	8.8	503	3.5
b) sexual contact with a person at risk	46	1.5	30	2.4	31	2.4	35	2.6	52	3.4	65	4.2	70	4.7	79	5.9	50	6.0	28	7.8	11	12.1	497	3.5
Recipient of Blood	66	2.2	13	1.0	12	0.9	12	0.9	14	0.9	10	0.6	5	0.3	7	0.5	9	1.1	2	0.6	0	0.0	150	1.1
Recipient of Clotting Factor	60	2.0	28	2.2	33	2.6	30	2.2	28	1.8	15	1.0	21	1.4	23	1.7	13	1.5	4	1.1	1	1.1	256	1.8
Occupational Exposure	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	1	0.3	0	0.0	1	<0.1
No Identified Risk-Heterosexual	9	0.3	7	0.6	17	1.3	13	1.0	9	0.6	16	1.0	9	0.6	7	0.5	9	1.1	9	2.5	3	3.3	108	0.8
No Identified Risk Factor	74		40		58		68		66		58		43		54		19		10		1		491	
Total	**3,142**	**100.0**	**1,286**	**100.0**	**1,344**	**100.0**	**1,427**	**100.0**	**1,588**	**100.0**	**1,614**	**100.0**	**1,545**	**100.0**	**1,395**	**100.0**	**858**	**100.0**	**370**	**100.0**	**92**	**100.0**	**14,661**	**100.0**

[1] Percentages based on total number minus those reports for which exposure category was unknown (NIR).

Source: Health Canada. *HIV and AIDS in Canada Surveillance Report to June 30 1998*. Division of HIV/AIDS Surveillance, Bureau of HIV/AIDS, STD and TB, LCDC, HPB, Health Canada, November 1998.

Table 11b. Number of AIDS cases and percentage distribution by exposure category and year of diagnosis, adults, females (15 years and over), Canada, cases diagnosed to June 30, 1998; last data reported to LCDC for the period ending on August 28, 1998

Exposure Category	Year of diagnosis											
	< 1989 n %	1989 n %	1990 n %	1991 n %	1992 n %	1993 n %	1994 n %	1995 n %	1996 n %	1997 n %	1998 n %	Cumulative n %
Injection Drug Use	11 6.0	8 10.5	8 13.8	18 19.8	19 18.8	27 24.8	31 25.2	33 27.0	28 26.2	18 28.1	5 38.5	206 19.7
Heterosexual Contact												
a) origin in a pattern II country	66 35.9	18 23.7	22 37.9	26 28.6	30 29.7	25 22.9	29 23.6	29 23.8	26 24.3	17 26.6	3 23.1	291 27.8
b) sexual contact with a person at risk	60 32.6	29 38.2	17 29.3	35 38.5	38 37.6	46 42.2	54 43.9	50 41.0	45 42.1	25 39.1	3 23.1	402 38.4
Occupational Exposure	0 0.0	0 0.0	1 1.7	0 0.0	0 0.0	0 0.0	0 0.0	0 0.0	0 0.0	0 0.0	0 0.0	1 0.1
Recipient of Blood	39 21.2	17 22.4	8 13.8	9 9.9	12 11.9	5 4.6	5 4.1	6 4.9	5 4.67	2 3.1	1 7.7	109 10.4
Recipient of Clotting Factor	3 1.6	2 2.6	2 3.4	1 1.1	1 1.0	2 1.8	0 0.0	0 0.0	0 0	1 1.6	0 0.0	12 1.1
No Identified Risk-Heterosexual	5 2.7	2 2.6	0 0.0	2 2.2	1 1.0	4 3.7	4 3.3	4 3.3	3 2.8	1 1.6	1 7.7	27 2.6
No Identified Risk Factor	6	3	6	4	8	6	3	2	5	2	0	45
Total	**190 100.0**	**79 100.0**	**64 100.0**	**95 100.0**	**109 100.0**	**115 100.0**	**126 100.0**	**124 100.0**	**112 100.0**	**66 100.0**	**13 100.0**	**1,093 100.0**

[1] Percentages based on total number minus those reports for which exposure category was unknown (NIR).

Source: Health Canada. *HIV and AIDS in Canada Surveillance Report to June 30 1998*. Division of HIV/AIDS Surveillance, Bureau of HIV/AIDS, STD and TB, LCDC, HPB, Health Canada, November 1998.

Table 11c. **Number of AIDS cases and percentage distribution by exposure category and year of diagnosis, adults (15 years old and over), Canada, cases diagnosed to June 30, 1998, last data reported to LCDC for the period ending on August 28, 1998**

Exposure Category	Year of diagnosis											
	< 1989	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	Cumulative
	n %	n %	n %	n %	n %	n %	n %	n %	n %	n %	n %	n %
Men who have Sex with Men	2,629 80.8	1,058 80.0	1,069 79.5	1,120 77.2	1,242 76.5	1,227 73.7	1168 71.9	1015 69.4	574 60.7	233 55.0	57 54.8	11,392 74.9
Injection Drug Use	37 1.1	32 2.4	34 2.5	65 4.5	74 4.6	100 6.0	119	124 8.5	114 12.1	57 13.4	13 12.5	769 5.1
MSM/IDU	111 3.4	52 3.9	60 4.5	65 4.5	77 4.7	89 5.3	97 6.0	76 5.2	51 5.4	19 4.5	3 2.9	700 4.6
Heterosexual Contact												
a) origin in a pattern II country	187 5.8	52 3.9	60 4.5	63 4.3	75 4.6	86 5.2	73 4.5	72 4.9	73 7.7	42 9.9	11 10.6	794 5.2
b) sexual contact with a person at risk	106 3.3	59 4.5	48 3.6	70 4.8	90 5.5	111 6.7	124 7.6	129 8.8	95 10.0	53 12.5	14 13.5	899 5.9
Recipient of Blood	105 3.2	30 2.3	20 1.5	21 1.4	26 1.6	15 0.9	10 0.6	13 0.9	14 1.5	4 0.9	1 1.0	259 1.7
Recipient of Clotting Factor	63 1.9	30 2.3	35 2.6	31 2.1	29 1.8	17 1.0	21 1.3	23 1.6	13 1.4	5 1.2	1 1.0	268 1.8
Occupational Exposure	0 0.0	0 0.0	1 <0.1	0 0.0	0 0.0	0 0.0	0 0.0	0 0.0	0 0.0	1 0.2	0 0.0	2 <0.1
No Identified Risk-Heterosexual	14 0.4	9 0.7	17 1.3	15 1.0	10 0.6	20 1.2	13 0.8	11 0.8	12 1.3	10 2.4	4 3.8	135 0.9
No Identified Risk Factor	80	43	64	72	74	64	46	56	24	12	1	536
Total	**3,332 100.0**	**1,365 100.0**	**1,408 100.0**	**1,522 100.0**	**1,697 100.0**	**1,729 100.0**	**1,671 100.0**	**1,519 100.0**	**970 100.0**	**436 100.0**	**105 100.0**	**15,754 100.0**

[1] Percentages based on total number minus those reports for which exposure category was unknown (NIR).

Source: Health Canada. *HIV and AIDS in Canada Surveillance Report to June 30 1998*. Division of HIV/AIDS Surveillance, Bureau of HIV/AIDS, STD and TB, LCDC, HPB, Health Canada, November 1998.

Table 11d. Number of AIDS cases and percentage distribution by exposure category and year of diagnosis, pediatric cases (less than 15 years old), Canada, cases diagnosed to June 30, 1998, last data reported to LCDC for the period ending on August 28, 1998

Exposure Category	Year of diagnosis											
	< 1989 n %	1989 n %	1990 n %	1991 n %	1992 n %	1993 n %	1994 n %	1995 n %	1996 n %	1997 n %	1998 n %	Cumulative n %
Recipient of Blood	9 18.4	0 0.0	1 10.0	0 0.0	1 6.3	1 7.1	2 13.3	3 13.0	1 8.3	0 0	0 0.0	18 10.5
Recipient of Clotting Factor	1 2.0	3 25.0	3 30.0	1 7.7	2 12.5	0 0.0	1 6.7	0 0.0	0 0.0	0 0	0 0.0	11 6.4
Perinatal	39 79.6	9 75.0	6 60.0	12 92.3	13 81.3	13 92.9	12 80.0	20 87.0	11 91.7	8 100	0 0.0	143 83.1
No Identified Risk Factor	0	0	1	0	1	0	3	2	2	0	0	9
Total	**49 100.0**	**12 100.0**	**11 100.0**	**13 100.0**	**17 100.0**	**14 100.0**	**18 100.0**	**25 100.0**	**14 100.0**	**8 100.0**	**0 100.0**	**181 100.0**

[1] Percentages based on total number minus those reports for which exposure category was unknown (NIR).

Source: Health Canada. *HIV and AIDS in Canada Surveillance Report to June 30 1998*. Division of HIV/AIDS Surveillance, Bureau of HIV/AIDS, STD and TB, LCDC, HPB, Health Canada, November 1998.

Table 11e. Number of AIDS cases by exposure category and age group, Canada, cases diagnosed to June 30, 1998; last data reported to LCDC for the period ending on August 28, 1998

Exposure Category	Age Group											
	Pediatrics					Adults						
	< 1 yr	1 to 4 yrs	5 to 9 yrs	10 to 14 yrs	Total Pediatrics	15 to 19 yrs	20 to 29 yrs	30 to 39 yrs	40 to 49 yrs	50 yrs +	Total Adults	Total
Men who have Sex with Men	0	0	0	0	0	8	1,689	5,225	3,345	1,125	11,392	11,392
MSM/IDU	0	0	0	0	0	3	209	327	132	29	700	700
Injection Drug Use	0	0		0	0	4	185	389	157	34	769	769
Heterosexual Contact												
a) origin in a pattern II country	0		0	0	0	3	181	378	152	80	794	794
b) sexual contact with a person at risk	0		0	0	0	3	180	306	221	189	899	899
Recipient of Blood	1	3	3	11	18	3	31	52	44	129	259	277
Recipient of Clotting Factor	0	0	3	8	11	30	74	74	51	39	268	279
Occupational Exposure	0	0	0	0	0	0	0	0	1	1	2	2
No Identified Risk-Heterosexual	0	0	0	0	0	1	20	30	46	38	135	135
No Identified Risk Factor	4	3	1	1	9	1	94	194	130	117	536	545
Perinatal	77	52	13	1	143	0	0	0	0	0	0	143
Total	**82**	**58**	**20**	**21**	**181**	**56**	**2,663**	**6,975**	**4,279**	**1,781**	**15,754**	15,935

Source: Health Canada. *HIV and AIDS in Canada Surveillance Report to June 30 1998.* Division of HIV/AIDS Surveillance, Bureau of HIV/AIDS, STD and TB, LCDC, HPB, Health Canada, November 1998.

Table 12a. Number of AIDS cases reported by province and territory, gender, and ratio males:females, Canada, cases diagnosed to June 30, 1998, last data reported to LCDC for the period ending on August 28, 1998.

Province or Territory	Number of cases		Ratio
	Males	Females	Males:Females
B.C.	2,458	108	23:1
Yukon	4	0	—
Alberta	880	51	17:1
N.W.T.	11	5	2:1
Sask.	109	16	7:1
Man.	152	10	15:1
Ont.	6,018	353	17:1
Que.	4,717	592	8:1
N.B.	116	13	9:1
P.E.I. & N.S.	238	19	13:1
Nfld.	54	11	5:1
Total	**14,757**	**1,178**	**13:1**

Source: Health Canada. *HIV and AIDS in Canada Surveillance Report to June 30 1998*. Division of HIV/AIDS Surveillance, Bureau of HIV/AIDS, STD and TB, LCDC, HPB, Health Canada, November 1998.

Table 12b. Number of AIDS cases reported by province and territory, year of diagnosis, males, all ages, Canada, cases diagnosed to June 30, 1998; last data reported to LCDC for the period ending on August 28, 1998

Province/Territory	Year of diagnosis												
	< 1989	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	Total n	%
B.C.	500	221	221	257	276	281	275	236	141	37	13	2,458	16.7
Yukon	1	1	0	0	0	0	0	2	0	0	0	4	<0.1
Alberta	154	76	76	78	97	92	115	90	63	38	1	880	6.0
N.W.T.	2	2	1	1	1	0	2	1	1	0	0	11	0.1
Sask.	27	7	16	6	6	12	13	14	4	4	0	109	0.7
Man.	28	16	11	21	17	15	14	15	9	2	4	152	0.1
Ont.	1,347	515	587	583	679	665	582	547	332	148	33	6,018	40.8
Que.	1,039	426	407	448	485	502	495	455	291	135	34	4,717	32.0
N.B.	16	12	12	12	11	15	13	16	6	2	1	116	0.8
P.E.I. & N.S.	42	15	13	22	23	31	35	28	16	8	5	238	1.6
Nfld.	10	3	6	6	5	5	9	5	4	0	1	54	0.4
Total	**3,166**	**1,294**	**1,350**	**1,434**	**1,600**	**1,618**	**1,553**	**1,409**	**867**	**374**	**92**	**14,757**	**100.0**

Source: Health Canada. *HIV and AIDS in Canada Surveillance Report to June 30 1998*. Division of HIV/AIDS Surveillance, Bureau of HIV/AIDS, STD and TB, LCDC, HPB, Health Canada, November 1998.

Table 12c. Number of AIDS cases reported by province and territory, year of diagnosis, females, all ages, Canada, cases diagnosed to June 30, 1998; last data reported to LCDC for the period ending on August 28, 1998

Province/Territory	Year of diagnosis												
	< 1989	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	Total n	%
B.C.	15	2	2	7	11	15	16	20	12	7	1	108	9.2
Yukon	0	0	0	0	0	0	0	0	0	0	0	0	0.0
Alberta	9	4	0	4	5	5	8	6	5	5	0	51	4.3
N.W.T.	1	0	0	0	0	1	0	1	1	0	0	5	0.4
Sask.	2	1	1	0	5	0	2	2	0	3	0	16	1.4
Man.	1	0	0	2	0	0	1	1	2	2	1	10	0.8
Ont.	43	19	28	35	35	35	41	45	37	27	8	353	30.0
Que.	138	50	35	52	51	64	60	57	57	25	3	529	50.3
N.B.	3	2	1	0	0	2	2	1	1	1	0	13	1.1
P.E.I. & N.S.	3	3	1	1	4	3	2	2	0	0	0	19	1.6
Nfld.	0	2	1	0	2	0	4	0	2	0	0	11	0.9
Total	**215**	**83**	**69**	**101**	**114**	**125**	**136**	**135**	**117**	**70**	**13**	**1,178**	**100.0**

Source: Health Canada. *HIV and AIDS in Canada Surveillance Report to June 30 1998*. Division of HIV/AIDS Surveillance, Bureau of HIV/AIDS, STD and TB, LCDC, HPB, Health Canada, November 1998.

Table 12d. Number of AIDS cases reported by province and territory, year of diagnosis, all ages, Canada, cases diagnosed to June 30, 1998; last data reported to LCDC for the period ending on August 28, 1998

Province/Territory	Year of diagnosis												
	< 1989	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	Total n	%
B.C.	515	223	223	264	287	296	291	256	153	44	14	2,566	16.1
Yukon	1	1	0	0	0	0	0	2	0	0	0	4	<0.1
Alberta	163	80	76	82	102	97	123	96	68	43	1	931	5.8
N.W.T.	3	2	1	1	2	1	2	2	2	0	0	16	0.1
Sask.	29	8	17	6	11	12	15	16	4	7	0	125	0.8
Man.	29	16	11	23	17	15	15	16	11	4	5	162	1.0
Ont.	1,390	534	615	618	714	700	623	592	369	175	41	6,371	40.0
Que.	1,177	476	442	500	536	566	555	512	348	160	37	5,309	33.3
N.B.	19	14	13	12	11	17	15	17	7	3	1	129	0.8
P.E.I. & N.S.	45	18	14	23	27	34	37	30	16	8	5	257	1.6
Nfld.	10	5	7	6	7	5	13	5	6	0	1	65	0.4
Total	**3,381**	**1,377**	**1,419**	**1,535**	**1,714**	**1,743**	**1,689**	**1,544**	**984**	**444**	**105**	**15,935**	**100.0**

Source: Health Canada. *HIV and AIDS in Canada Surveillance Report to June 30 1998*. Division of HIV/AIDS Surveillance, Bureau of HIV/AIDS, STD and TB, LCDC, HPB, Health Canada, November 1998.

Table 13. Number of AIDS cases and percentage distribution, by exposure category, province and territory, Canada, cases diagnosed to June 30, 1998; last data reported to LCDC for the period ending on August 28, 1998

Exposure Category	Province/Territory																					
	BC		YT		AB		NT		SK		MB		ON		QC		NB		PE & NS		NF		Total	
	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%
Men who have Sex with Men	2,083	82.6	2	50.0	684	75.3	5	31.3	67	54.9	112	71.3	4,719	77.8	3,428	66.5	70	55.1	192	76.8	30	46.2	11,392	74.0
Injection Drug Use	145	5.8	1	25.0	51	5.6	0	0.0	6	4.9	7	4.5	225	3.7	315	6.1	7	5.5	10	4.0	2	3.1	769	5.0
MSM/IDU	126	5.0	1	25.0	55	6.1	1	6.3	10	8.2	8	5.1	238	3.9	247	4.8	6	4.7	7	2.8	1	1.5	700	4.5
Heterosexual Contact																								
a) origin in a pattern II country	16	0.6	0	0.0	15	1.7	0	0.0	0	0.0	7	4.5	177	2.9	574	11.1	1	0.8	4	1.6	0	0.0	794	5.2
b) sexual contact with a person at risk	94	3.7	0	0.0	54	5.9	8	50.0	14	11.5	7	4.5	461	7.6	209	4.1	16	12.6	18	7.2	18	27.7	899	5.8
Occupational Exposure	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	2	<0.1	0	0.0	0	0.0	0	0.0	0	0.0	2	<0.1
Recipient of Blood	19	0.8	0	0.0	25	2.8	1	6.3	7	5.7	3	1.9	121	2.0	83	1.6	4	3.1	10	4.0	4	6.2	277	1.8
Recipient of Clotting Factor	26	1.0	0	0.0	19	2.1	0	0.0	17	13.9	11	7.0	90	1.5	78	1.5	22	17.3	9	3.6	7	10.8	279	1.8
Perinatal Transmission	12	0.5	0	0.0	5	0.6	1	6.3	1	0.8	2	1.3	34	0.6	84	1.6	1	0.8	0	0.0	3	4.6	143	0.9
No Identified Risk-Heterosexual	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	135	2.6	0	0.0	0	0.0	0	0.0	135	0.9
No Identified Risk Factor	45		0		23		0		3		5		304		156		2		7		0		545	
Total	**2,566**	**100.0**	**4**	**100.0**	**931**	**100.0**	**16**	**100.0**	**125**	**100.0**	**162**	**100.0**	**6,371**	**100.0**	**5,309**	**100.0**	**129**	**100.0**	**257**	**100.0**	**65**	**100.0**	**15,935**	**100.0**

[1] Percentages based on total number minus those reports for which exposure category was unknown (NIR).

Source: Health Canada. *HIV and AIDS in Canada Surveillance Report to June 30 1998*. Division of HIV/AIDS Surveillance, Bureau of HIV/AIDS, STD and TB, LCDC, HPB, Health Canada, November 1998.

The numbers of known deaths reported to LCDC are presented in Table 14. The information on deaths is important because it allows us to estimate the number of persons living with HIV/AIDS as well as the impact of treatment. It is, however, important to note that deaths among AIDS cases presented here may be under- counted. There are number of reasons for this. There are reporting delays and underreporting of deaths due to AIDS, just as there are for reporting of AIDS cases. It is also possible that in people with HIV/AIDS, deaths due to causes other than AIDS in persons with AIDS are not reported to LCDC. Also, in some situations, even though AIDS may be listed as a cause of death by an attending physician, this may never be actually reported (as an update of status) to LCDC. For these reasons, caution must be exercised when interpreting the data on deaths attributed to HIV/AIDS. We do not recommend using the difference between the total of reported AIDS cases and total deaths to calculate the total number of persons living with AIDS.

Table 14. Number of deaths reported and cumulative total, by year of death, for adults (15 years and over), pediatric cases (less than 15 years old), and the total population, Canada, cases diagnosed to June 30, 1998; last data reported to LCDC for the period ending on August 28, 1998

Year of death	Adults		Pediatrics		Total	
	Number	Cumulative	Number	Cumulative	Number	Cumulative
< 1989	1,762	1,762	30	30	1,792	1,792
1989	792	2,554	6	36	798	2,590
1990	877	3,431	4	40	881	3,471
1991	1,033	4,464	7	47	1,040	4,511
1992	1,247	5,711	11	58	1,258	5,769
1993	1,362	7,073	14	72	1,376	7,145
1994	1,391	8,464	14	86	1,405	8,550
1995	1,409	9,873	10	96	1,419	9,969
1996	978	10,851	6	102	984	10,953
1997	365	11,216	3	105	368	11,321
1998	60	11,276	0	105	60	11,381
Total	**11,276**		**105**		**11,381**	

Year of death is unknown for 208 AIDS cases, including 206 adults and 2 pediatric cases.

Source: Health Canada. *HIV and AIDS in Canada Surveillance Report to June 30 1998*. Division of HIV/AIDS Surveillance, Bureau of HIV/AIDS, STD and TB, LCDC, HPB, Health Canada, November 1998.

SECTION III

A Review of HIV/AIDS Surveillance, Trend Analysis and Projections in Canada: 1982-1998

1. 1982-1986

In 1982, following the identification and definition of the acquired immune deficiency syndrome (AIDS) in the United States[1,2], the Department of Health and Welfare Canada (HWC) initiated the AIDS Case Reporting Surveillance System. In November 25, 1983, HWC published 51 AIDS cases[3] with both month/year of diagnosis and month/year the case was reported to the Laboratory Centre for Disease Control (LCDC). Of these cases, 13 cases were diagnosed based on the then clinical diagnosis of AIDS before February 1982. It was subsequently confirmed that the first AIDS case diagnosed in Canada was in 1979.

Meanwhile in the United States, the first 1,000 AIDS cases were summarized by initial indicator diseases[4], as well as the isolation of the human immunodeficiency virus (HIV)[5,6]. These developments prompted the 1985 revision of AIDS case definition in the United States[7] to include HIV positive antibody test and a more extensive list of AIDS indicator diseases. This revision contributed less than 1% to the number of reported cases (pre 1985). Established statistical methods attempted to estimate the scope and project the size of the epidemic. Initial U.S. Public Health Service projections, completed in 1986 with an extrapolation of a polynomial in time, estimated that by the end of 1991, the total number of cases in the U.S. would reach 270,000[8]. This was startling to public health planners and policy makers because it meant that the epidemic would be at least 10 times larger than the number of cases observed to date. There were other projections in the U.S. based on extrapolations that have not performed well, since the results depend critically on the functional form used for the extrapolation.

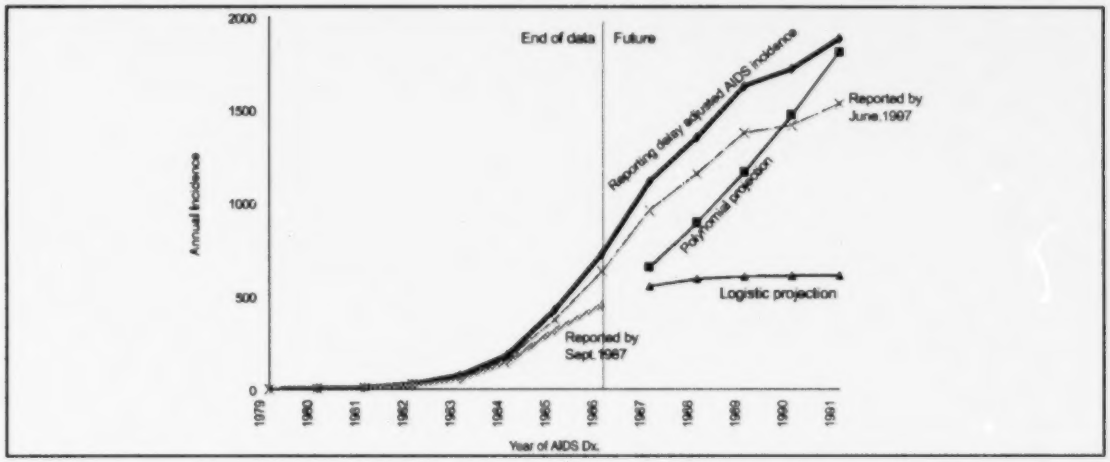
Statisticians were among the first to point out the deficiencies in using existing surveillance data to determine the incubation period and future health care needs. Morgan and Curran[10] argued the societal need for reliable projections of the size of the epidemic. The need to adjust for effects of reporting delays using statistical methods was also recognized. It was also becoming apparent that existing statistical methods were proving to be insufficient.

After 1985, the established Canadian Federal Centre for AIDS (FCA) defined a case of AIDS as a person who has an illness characterized by the following: (1) one or more of the specified indicator diseases, and (2) either a positive test for HIV infection or absence of specified causes of underlying immune deficiency. The list of the specified indicator diseases was adopted from the revised U.S. AIDS case definition. By December 4 1986, the total number of AIDS cases reported to LCDC had risen to 830[11].

Projections of the number of AIDS cases by simple extrapolation were also attempted in Canada using AIDS cases diagnosed to the end of 1986. Two projection methods, one based on a logistic functional form projecting a cumulative 3953 cases by 1991, and the other based on polynomial functional form projecting a cumulative 6974 cases by 1991, were presented in 1987 FCA *Surveillance Update: AIDS in Canada*[12] report. Neither of these techniques was very effective at projecting the HIV/AIDS epidemic. According to data reported to LCDC by June 1997[13], the cumulative number of AIDS cases diagnosed by the end of 1991 was 7690, almost twice as many as projected by the logistic model. These differences were affected by two sources of errors: (1) the number of cases was not adjusted for reporting delay before extrapolation and hence the baseline data were seriously under-counted, and (2) the functional forms used for extrapolation/projection might not be adequate.

As shown in Figure 2, data reported to mid-1997 showed many more AIDS cases diagnosed to the end of 1986 than projected and neither of the two functional forms chosen for projection resembled the trend of AIDS over time.

Figure 2. 1986 extrapolation of AIDS cases for 1987-90 compared to actually reported cases

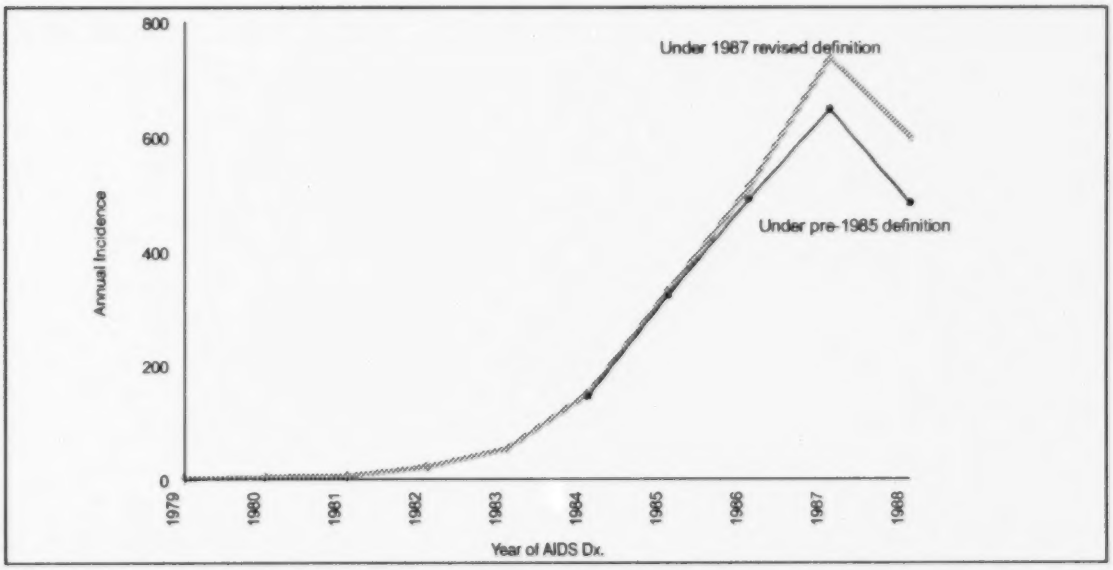


2. 1987-1992

AIDS case definition in Canada was revised on September 1, 1987 corresponding to the revision of the AIDS case definition in the United States[14]. For those untested for HIV, the pre-1985 criteria were still to be used. For persons with positive HIV antibody tests, the 1987 revision expanded the list of diseases to include extrapulmonary tuberculosis, HIV encephalopathy and HIV wasting.

In subsequent issues of *Surveillance Update: AIDS in Canada* released by FCA until March 1989, AIDS cases were presented by quarter/year of diagnoses. Cases accepted for surveillance that met the 1987 revised case definition but would not have been included under the previous case definition were indicated. Figure 3 shows cases diagnosed to the end of 1988 (reported by the end of January 1989)[15] under the revised definition and under the previous definition.

Figure 3. Effect of 1987 revision of AIDS case definition on trend



By the end of 1992, cumulative AIDS cases diagnosed from 1979 to 1992 and reported to Health and Welfare Canada had reached 7,282, of which 7-8% were diagnosed (primary disease occurrence) with HIV wasting and another 4-5% with HIV encephalopathy. In comparison, a study on 630 hemophiliac patients with HIV infection in the U.S.[16] show that the 1987 revision increased the number of cases with AIDS by 22%. Most of these people (9) had HIV encepholopathy (3), PCP presumptive (3) and HIV wasting (3).

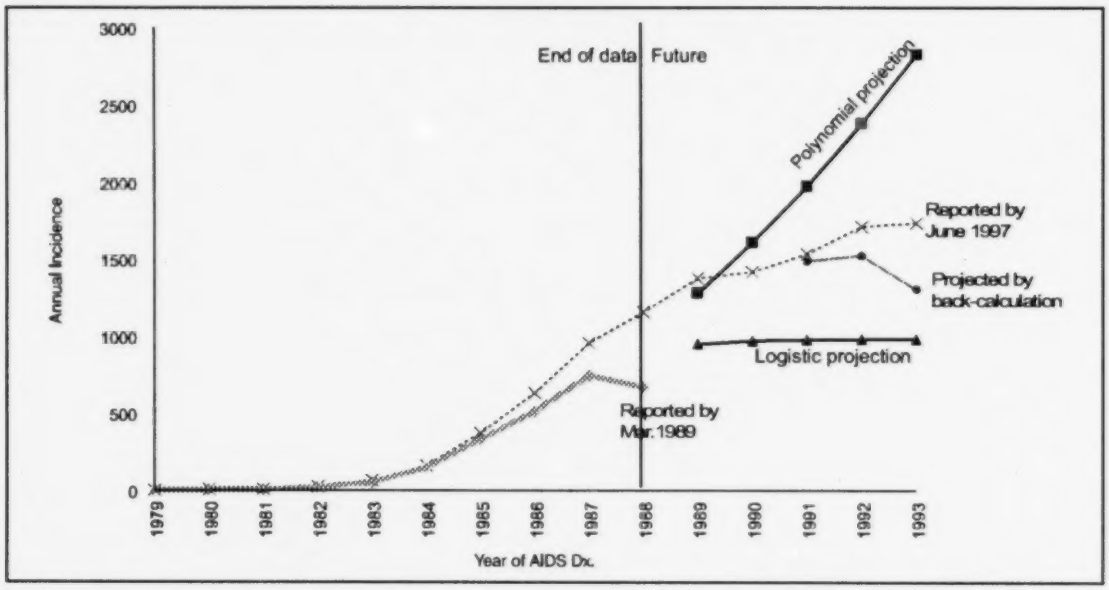
During the five year period between 1987 and 1992, the AIDS case definition remained consistent and was uniformly adopted in the United States, Canada, 48 countries of the World Health Organization (WHO) European Region, Australia and New Zealand. A consistent case definition enabled analyses of trend of AIDS diagnosed over time.

One of the problems that first confronted people trying to interpret trends in AIDS surveillance data concerned correcting or adjusting for reporting delays and underreporting. Studies of the extent of underreporting in AIDS surveillance in Canada were published[17,18]. It was estimated that the degree of underreporting might be in the range from 0% to 45%, with an apparent increase of underreporting over time. However, these estimates might have been confounded with reporting delays since the most recently diagnosed cases had less chance to be reported, so consequently they suffer from more underreporting than cases diagnosed earlier. A plot of AIDS cases by date of diagnosis typically shows a fall off in the most recent calendar years. A naive interpretation assumes that the epidemic is waning, however that would be an artifact of AIDS reporting completeness and timeliness.

Reporting delay adjustment was first performed for AIDS surveillance data in Canada in 1989 by Marion and Schechter[19] as part of the process to estimate the number of individuals infected with HIV. New statistical methods for analyses and adjustment for reporting delays were applied to the AIDS surveillance data in Canada[20,21]. Application of these methods to AIDS surveillance data showed that approximately 85% of AIDS cases are expected to be reported to the surveillance system within five years after diagnoses, with the remaining 15% reported beyond five years or are never reported. These studies remained in academic circles and were published in statistical journals (one of them did not appear in print until 1994). Meanwhile, the FCA *Surveillance Update: AIDS in Canada* continued to use extrapolation based on logistic and polynomial functional forms to project AIDS cases until September 1991. These projections were revised periodically based on updated AIDS surveillance data. The last revision was made based on data diagnosed before October 1988 and reported before March 31, 1989.

In September 1989[22], the FCA replaced the projection of AIDS cases based on extrapolation of polynomial forms with projections based on back-calculation submitted by Marion and Schechter[19]. The new projections performed quite well when compared to AIDS cases diagnosed during 1991-1993 as reported by mid-1997, whereas the extrapolation methods performed not nearly as well (Figure 4).

Figure 4. **Three projections made in mid-1980s compared with actually reported AIDS incidence**



In Canada, studies of the natural history of HIV progression were conducted based on long term follow-up of cohorts of homosexual men (established in Vancouver[23,24] and Toronto[25] since 1984). These studies provided information on progression and cofactors of progression from HIV to AIDS[26-30]. Internationally and in the United States, several large cohort studies were conducted. Gail and Rosenberg[31] synthesized the data on incubation period from a number of these studies. A general picture emerged of a low hazard of progression to AIDS in the first few years following HIV infection, followed by a rapidly increasing hazard function. The probability of developing AIDS within the first 3 years of infection is small, perhaps only 3%. The hazard of AIDS then rises rapidly so that about 25% of individuals develop AIDS within 7 years of infection. The median incubation period is approximately 10 years. However, there is relatively little information regarding the natural history beyond 10 years since a number of treatments that alter the natural history of the disease became available to some HIV infected individuals after 1987.

Studies on HIV to AIDS progression led to the estimation of the size of the population infected with HIV by using AIDS surveillance data. In 1989, Marion and Schechter[19,32] estimated the trend of HIV infections in Canada using AIDS incidence data. It was estimated that approximately 29,000 persons had ever had HIV infection by mid-1989. With data to date, this estimate performed very well, as confirmed by back-calculation methods conducted in later years.

3. 1993-1998

3.1 Establishment of a national HIV database

The second Annual HIV/AIDS Epidemiological Research and Surveillance Meeting, which brought together over 60 researchers, provincial and territorial HIV/AIDS programme co-ordinators, and representatives of the affected communities in Canada, was held in November 1993. It arrived at consensus that in addition to AIDS surveillance systems, there needed to be comprehensive national HIV surveillance standards and a database that will monitor newly diagnosed HIV infections. It was recommended that HIV surveillance information should include demographics, exposure categories, ethno-cultural information, HIV testing history (including dates). The HIV surveillance program was to use unique identifiers to rule out duplicate test reports[33]. By mid-1988, 9 the 10 provinces and two territories in Canada made diagnoses of HIV infection a reportable condition.

In 1995, a national HIV database project based on non-nominal, confidential information on positive HIV test reports produced by all provinces and territories in Canada was established by the Bureau of HIV/AIDS and STDs, LCDC. Although unique identifiers were not adopted in many provinces, duplicate tests have been removed to the degree possible by each province and territory. The data provide information only on the tested population. Based on the information provided by all provinces and territories, two issues of *HIV in Canada: Surveillance of HIV Positive Test Reports* were published. The latest report indicates that in 1996, 2,857 positive HIV test reports (with duplicates removed to the degree possible) were reported in Canada. In 1995, a total of 3,091 positive HIV test reports were reported. In the period of 1985-1994, 33,398 positive HIV test reports were reported. Duplicate test removal has varied in the 1985-1994 period between province and territory.

In 1997, the report based on HIV test reports was merged with the AIDS surveillance report, and semi-annual combined HIV/AIDS surveillance reports were initiated reflecting the current approach to HIV/AIDS surveillance.

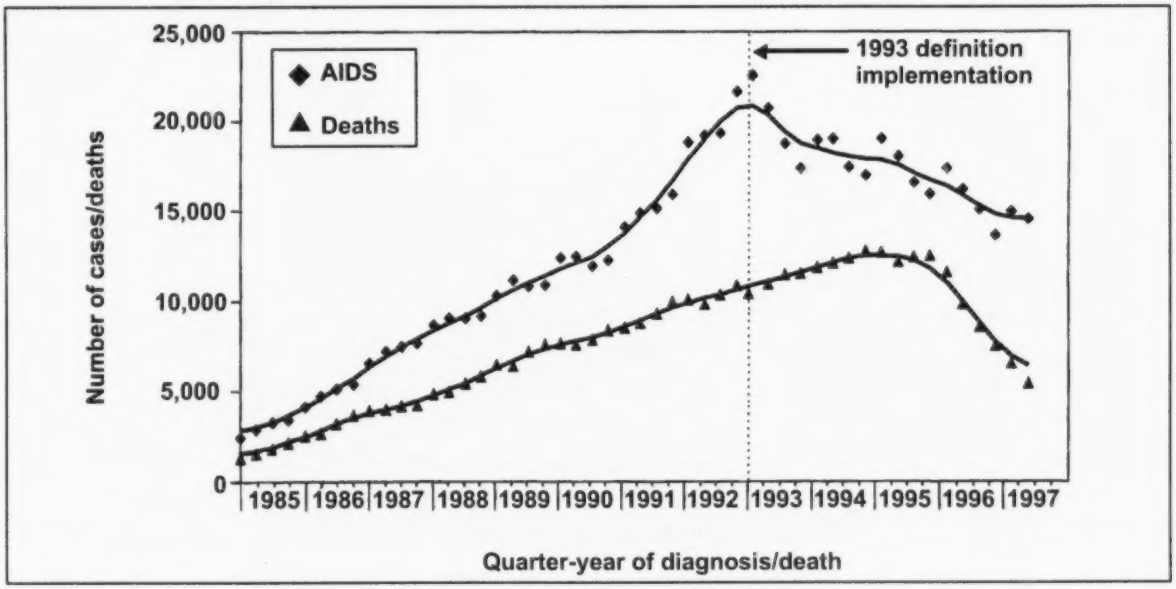
3.2 The AIDS Case Reporting Surveillance System

Effective July 1, 1993, the surveillance definition of AIDS in Canada was changed[34]. The AIDS defining illnesses of the previous case definition was retained in its entirety, and three new clinical conditions were added. These three clinical conditions include: (1) pulmonary tuberculosis, (2) recurrent bacterial pneumonia and (3) invasive cervical cancer. Adding these three AIDS defining illnesses was supposed to assist in solving the concerns of under diagnosis of AIDS in women, injecting drug users and others.

The AIDS case definition revised in 1993 in Canada was in contrast to the change in the AIDS case definition made by the United States[35]. Effective January 1, 1993, the US AIDS case definition was expanded to include CD4 T-lymphocyte count of < 200. However, the Canadian AIDS case definition. The case definition adopted by Canada was uniformly adopted in Canadian provinces and territories, 48 countries of the WHO European Region, Australia and New Zealand.

The U.S. revised definition to include CD4 < 200 has limited the usefulness of AIDS surveillance to illustrate the trend of the HIV/AIDS epidemic. One effect is an abrupt increase in the growth in the number of cases diagnosed per calendar quarter beginning in early 1991, and a peak in incidence in the first quarter of 1993. This change of AIDS definition distorts the trend of AIDS incidence data (Figure 5).

Figure 5. AIDS incidence and incidence of AIDS related deaths in the U.S.[38]



United States, it is necessary to estimate how many cases of AIDS opportunistic infections (AIDS-OI) are diagnosed per year. The AIDS surveillance system often does not receive information on AIDS defining conditions after a case has been reported. Therefore, many of the cases diagnosed and reported on the basis of CD4 < 200 which have since developed an AIDS-OI would be excluded from analyses. In addition, AIDS cases diagnosed only based on the laboratory marker of CD4 count often have less information on important variables such as mode of exposure to HIV infection. As a result, the AIDS surveillance data in the U.S. in recent years suffers from a high percentage of cases with no identified risk (NIR).

AIDS surveillance data in Canada has experienced very few of these difficulties. The percentage of AIDS cases diagnosed with no identified risk has remained consistently around 4% of diagnosed AIDS cases throughout the years. Data of sufficient quality ensure that projections may continue to use the trend of AIDS diagnoses as a tool to estimate historical HIV incidence over time using back-calculation methods.

3.3 Statistical trend and projections for HIV/AIDS incidence and prevalence

HIV incidence refers to the number of new HIV infections in a defined period. *HIV prevalence* refers to the number of people who have been infected with HIV and are still alive. Similarly, *AIDS incidence* refers to the number of newly diagnosed AIDS cases and *AIDS prevalence* refers to the number of people who are living with AIDS. Incidence data are important to public health in relation to assessment of effectiveness of prevention methods. Prevalence data are important to public health in relation to ensuring quality treatment and care for people living with HIV/AIDS. *Trend and projections* aim to measure and detect changes of HIV/AIDS incidence and prevalence in the population with respect to time, age at infection/diagnosis, geography and populations at risk. They are crucial for population health risk assessment and management.

In the last five years, in addition to enhancement of the data delivering system and quality for HIV/AIDS surveillance data, statistical modelling has become a crucial function to interpret and disseminate the trend information based on surveillance data. In the following, a few examples will be used to illustrate the importance of this function in relation to data interpretation.

3.3.1 Trend analysis of AIDS incidence through reporting delay adjustments

Although reporting delay had been recognized in the AIDS surveillance program and reporting delays had been adjusted in the back-calculation[19], it was not incorporated as part of the routine dissemination of the AIDS surveillance data for trend interpretation until the spring of 1993. Several newspapers in Canada started to quote directly from the AIDS surveillance reports published around 1991- 1992 which misled the public to think that the trend of new AIDS diagnoses were declining. For instance, one report[34] showed that there were 1,194 AIDS cases diagnosed in 1989, 1092 cases diagnosed in 1990, 940 cases diagnosed in 1991 and 205 cases diagnosed in 1992. Since reporting delay was not adjusted in the data, the decline was only an artifact because many of AIDS cases diagnosed in these four years were actually reported to the system well after the surveillance report was published.

The reporting delay adjustment, based on the methods in Kalbfleisch and Lawless[20], Lawless[21], was first published in the AIDS surveillance report in April 1993[36]. It was estimated that to the end of 1992 there were around 11,573 adult AIDS cases diagnosed in Canada (instead of 7,205 reported cases) with a possible range from high 9,000's to low 13,000's. It also presented new information on trends to the public that the AIDS epidemic in Canada was actually rapidly rising. In addition, as shown in Table 1, the number of AIDS cases

In Canada, following the work by Marion and Schechter[19,32] in 1989 and 1992, back-calculation of historical HIV incidence in Canada was repeated at LCDC through 1993-1996, along with updated AIDS surveillance data. New statistical models and methods developed internationally were adopted and modified. Results based on AIDS surveillance data as of the end of 1995 included estimated age-specific HIV incidence trends, estimated median age at HIV infection in different time periods and HIV incidence trends by birth cohorts[43,44]. Similar

Table 15. Number of AIDS cases diagnosed in 1989-1992 estimated by reporting delay adjustment performed in 1993 compared with what have been observed by 1997

Year of AIDS diagnoses	As reported by Jan.1993[36]	Reporting delay adjusted based on data available in Jan. 1993	As reported by December 1997[37]
1989	1,209	1,464	1,374
1990	1,162	1,490	1,415
1991	1,091	1,621	1,533
1992	616	1,754	1,711

diagnosed during 1989 - 1992 as reported by the end of 1997[37] are getting closer to what were estimated during 1993. There are still AIDS cases diagnosed during 1989-1992 being reported in 1998 and maybe a few more in coming years. It seems likely that the number of cases diagnosed in 1989-1992 and eventually reported will converge closely to what were estimated.

3.3.2 Using AIDS surveillance data to estimate historical HIV incidence

The purpose of HIV/AIDS surveillance and monitoring include the following objectives: the estimation and projection of the number of new HIV infections in each given period of time (incidence), and the number of people infected with HIV (both old and recent HIV infections) who are still alive by a given time (prevalence). These two quantities directly serve the goals of prevention of the HIV infections and planning for treatment and care.

During the early 1990's, statistical models involving back-calculation of HIV incidence using AIDS surveillance data were improved. More comprehensive knowledge of HIV disease progression, effect of age at infection on HIV progression[39], and effect of the use of antiviral drugs and prophylaxis on HIV progression[40] has become available and is built into the models. More refined statistical methods for estimation have been developed. Back-calculation has been expanded into estimation of age-specific HIV incidence[40,41,42]. These new models and methods have been applied in the U.S., U.K., Australia and selected European countries.

back-calculation efforts have also been carried out in some provinces. For example, Remis and colleagues estimated historical HIV incidence for Quebec.

4. Current activities and future prospects

4.1 The HIV/AIDS surveillance system

Current HIV and AIDS surveillance activities are highlighted in the National AIDS Strategy, and include working towards improving AIDS surveillance methodologies, working with the provinces to improve HIV surveillance and to integrate a national network of HIV and AIDS databases to provide more representative surveillance data in a more timely fashion.

Standardizing positive HIV test reporting methodologies within all provinces and territories is a difficult task. Once accomplished, positive HIV test surveillance data will be of a more consistent quality across the country. To facilitate this task, most provinces and territories are considering making HIV reportable. Also, for consistency, wherever possible, the surveillance data collected would contain a minimum core set of information.

4.2 Statistical trends and projections

Nearly 20 years have passed since the first AIDS case was diagnosed in 1979 in Canada. Advances in medical research in treatment for people living with HIV as well as increased knowledge of the epidemic of the spread of HIV and natural history of HIV have provided help to both prevention and

planning for treatment and care of those infected with HIV. At the same time, there are challenges for statistical modelling and projections for HIV/AIDS trends in the new environment. A few initiatives are listed in the following paragraphs.

4.2.1 Assessment of differential trends for HIV opportunistic infections and the population effect of treatments

Since 1995, the number of new AIDS cases diagnosed per year in Canada has shown a declining trend. This coincides with approval and availability of new generations of antiviral drugs for treatment of people living with HIV. However, since AIDS surveillance definition consists of a list of more than 27 different kinds of opportunistic infections, the overall trend of newly diagnosed AIDS cases often masks the trends of opportunistic infections.

An in-depth trend analysis of opportunistic infections may reveal trends which are important to public health that have been overlooked. In collaboration with medical scientists, additional knowledge on types of opportunistic infections in relation to application of antivirals or prophylaxis therapies in clinical settings is necessary; this differential trend analysis may also help to make assessment of the population affected by new therapies and therefore fulfil one of the main objectives of HIV/AIDS surveillance in public health.

4.2.2 Estimation for recent incidence of new HIV infections and interpretations for HIV surveillance data

HIV surveillance data, which consist of reported newly diagnosed positive HIV cases, do not necessarily reflect the trend of new HIV infections since there are complications with respect to selection biases in test report data. Statistical modelling has again become an important tool in making HIV surveillance data useful for public health objectives. Current and future activities include assessment of data selection bias, modelling the gap between the time of a new HIV infection to the time of the earliest positive HIV test, modifying the back-calculation methods to be applicable to HIV testing data and developing integrated statistical models and methods to make best use of the national HIV/AIDS surveillance data, as well as data from supplementary sources, such as a network of clinical observational data and population survey data.

4.2.3 Trend analysis of prevalence data

Estimation of the number of people who have been infected with HIV and need quality treatment and care is important for future planning. Methods for synthesizing multiple data sources, including HIV/AIDS surveillance data, must be applied and the outcomes must be relevant to population health. These areas will also be a focus in statistical trend and projection activities.

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SECTION IV

International AIDS Statistics

AFRICA	Number of Reported Cases	Population	Date of Report	Rate per 100,000
ALGERIA	341	29,830,370	Dec-97	1.14
ANGOLA	1,926	10,548,847	Aug-97	18.26
BENIN	2,813	5,902,178	Jun-98	47.66
BOTSWANA	7,187	1,500,765	Dec-97	478.89
BURKINA FASO	11,352	10,891,159	Feb-98	104.23
BURUNDI	9,246	6,052,614	Dec-97	152.76
CAMEROON	9,626	14,677,510	May-97	65.58
CAPE VERDE	225	393,943	Dec-97	57.11
CENTRAL AFRICAN REP.	7,016	3,342,051	May-97	209.93
CHAD	8,339	7,166,023	Mar-98	116.37
COMOROS	18	528,893	Nov-97	3.40
CONGO	10,223	2,583,198	Sep-96	395.75
CÔTE D'IVOIRE	37,898	14,986,218	May-97	252.89
DEM. REP. CONGO	38,426	47,440,362	Jan-98	81.00
DJIBOUTI	1,672	434,116	Dec-97	385.15
EGYPT	168	64,824,466	Dec-97	0.26
EQUATORIAL GUINEA	231	442,516	Nov-96	52.20
ERITRIA	3,464	3,589,687	Jun-97	96.50
ETHIOPIA	21,569	58,732,577	Oct-97	36.72
GABON	1,660	1,190,159	Dec-96	139.48
GAMBIA	544	1,248,085	Dec-97	43.59
GHANA	24,692	18,100,703	May-98	136.41
GUINEA	4,085	7,405,375	Jun-98	55.16
GUINEA-BISSAU	823	11,78,584	Oct-96	69.83
KENYA	78,765	28,803,085	May-98	273.46
LESOTHO	4,075	2,007,814	Dec-97	202.96
LIBERIA	232	2,602,068	Mar-98	8.92
LIBYAN ARAB JAMAHIRIYA	17	5,648,359	Dec-95	0.30
MADAGASCAR	32	14,061,627	Jul-97	0.23
MALAWI	49,120	9,609,081	Jun-97	511.18

MALI	4,516	9,788,904	May-98	46.13
MOROCCO	464	30,391,423	Dec-97	1.53
MAURITANIA	532	2,411,317	May-97	22.06
MAURITIUS	43	1,154,272	May-98	3.73
MOZAMBIQUE	7,219	18,165,476	Mar-98	39.74
NAMIBIA	6,784	1,727,183	Mar-97	392.78
NIGER	3,219	9,388,859	Jun-98	34.29
NIGERIA	20,337	107,129,469	Mar-98	18.98
REUNION	166	692,204	Dec-95	23.98
RWANDA	12,056	7,737,537	Dec-97	155.81
SAO TOME AND PRINCIPE	27	1,47,865	Oct-97	18.26
SENEGAL	2,393	9,403,546	Dec-97	25.45
SEYCHELLES	30	78,107	Feb-98	38.41
SIERRA LEONE	205	4,891,546	Sep-96	4.19
SOMALIA	13	6,590,325	Dec-90	0.20
SOUTH AFRICA	12,825	42,327,458	Oct-96	30.30
SUDAN	1,832	32,594,128	Dec-97	5.62
SWAZILAND	2,939	1,031,600	Mar-98	284.90
TOGO	7,993	4,735,610	Mar-97	168.79
TUNISIA	340	9,245,284	Jun-97	3.68
UGANDA	53,306	20,604,874	Dec-97	258.71
UNIT. REP. TANZANIA	97,621	29,460,753	Jun-98	331.36
ZAMBIA	44,942	9,349,975	Jul-97	480.66
ZIMBABWE	70,669	11,423,175	Dec-97	618.65
TOTAL	**756,925**			
NORTH AMERICA				
CANADA	15,935	30,337,334	Nov-98	52.53
MEXICO	35,119	97,563,374	Mar-98	36.00
UNITED STATES	641,068	267,954,764	Mar-98	239.24
TOTAL	**692,122**			
SOUTH & CENTRAL AMERICA				
ANGUILLA	6	10,785	Jun-97	55.63
ANTIGUA AND BARBUDA	90	63,739	Sep-97	141.20
ARGENTINA	11,506	35,797,985	Mar-98	32.14
BAHAMAS	2,748	275,941	Sep-97	995.87
BARBADOS	875	258,756	Dec-97	338.16
BELIZE	198	224,663	Dec-96	88.13
BERMUDA	345	62,569	Jun-97	551.39
BOLIVIA	179	7,669,868	Mar-98	2.33
BRAZIL	120,399	164,511,366	Nov-97	73.19

BRITISH VIRGIN ISLANDS	15	13,368	Dec-97	112.21
CAYMAN ISLANDS	22	36,153	Dec-97	60.85
CHILE	2,212	14,508,158	Mar-98	15.25
COLOMBIA	8,433	37,418,290	Mar-98	22.54
COSTA RICA	1,284	3,534,174	Sep-97	36.33
CUBA	689	10,999,041	Dec-97	6.26
DOMINICA	70	66,633	Dec-97	105.05
DOMINICAN REPUBLIC	4,052	7,868,731	Sep-97	51.49
ECUATOR	625	12,105,124	Mar-97	5.16
EL SALVADOR	2,019	5,661,827	Jun-97	35.66
FRENCH GUIANA	641	156,946	Dec-97	408.42
GRENADA	103	95,537	Sep-97	107.81
GUADELOUPE	790	411,823	Dec-97	191.83
GUATEMALA	2,395	11,685,695	Mar-98	20.50
GUYANA	957	706,116	Dec-97	135.53
HAITI	4,967	6,611,407	Dec-92	75.13
HONDURAS	8,217	5,751,384	Dec-97	142.87
JAMAICA	2,430	2,615,582	Sep-97	92.90
MARTINIQUE	436	402,984	Dec-97	108.19
MONTSERRAT	7	12,800	Mar-97	54.69
NETHERLANDS	255	279,124	Dec-95	91.36
ANTILLES & ARUBA				
NICARAGUA	180	4,386,399	Mar-98	4.10
PANAMA	1,620	2,693,417	Dec-97	60.15
PARAGUAY	349	5,651,634	Mar-98	6.18
PERU	7,204	25,573,924	Mar-98	28.17
SAINT KITTS AND NEVIS	58	41,803	Jun-97	138.75
SAINT LUCIA	105	150,630	Dec-97	69.71
SAINT VINCENT AND THE GRENADINES	111	119,092	Sep-97	93.21
SURINAME	211	424,569	Dec-96	49.70
TRINIDAD AND TOBAGO	2,613	1,130,337	Mar-97	231.17
TURKS AND CAICOS ISLANDS	39	14,631	Sep-93	266.56
URUGUAY	1,013	3,270,707	Dec-97	30.97
VENEZUELA	7,282	22,396,407	Mar-98	32.51
TOTAL	**197,750**			
ASIA				
AFGHANISTAN	0	23,738,085	Dec-91	0.00
ARMENIA	13	3,433,629	Mar-98	0.38
AZERBAIJAN	10	7,797,476	Mar-98	0.13

BAHRAIN	48	603,318	Dec-97	7.96
BANGLADESH	10	125,340,261	Mar-98	0.01
BHUTAN	0	1,865,191	Nov-96	0.00
BRUNEI DARUSSALAM	12	307,616	Feb-98	3.90
CAMBODIA	978	11,163,861	Feb-98	8.76
CHINA	281	1,221,591,778	Mar-98	0.02
CYPRUS	58	752,808	Sep-97	7.70
DEMOCRATIC PEOPLE'S REP. KOREA	0	24,317,004	Nov-96	0.00
GEORGIA	22	5,160,042	Mar-98	0.43
HONG KONG	309	6,547,189	Mar-98	4.72
INDIA	6,252	966,783,171	Mar-98	0.65
INDONESIA	156	209,774,138	Mar-98	0.07
IRAN	194	67,540,002	Dec-97	0.29
IRAQ	104	22,219,289	Dec-97	0.47
ISRAEL	475	5,534,672	Mar-98	8.58
JAPAN	1,781	125,732,794	Mar-98	1.42
JORDAN	59	4,324,638	Dec-97	1.36
KAZAKHSTAN	14	16,881,793	Jun-97	0.08
KUWAIT	26	1,834,269	Dec-97	1.42
KYRGYZSTAN	0	4,512,809	Mar-98	0.00
LAO DEM. REP.	77	5,116,959	Mar-98	1.50
LEBANON	98	3,449,578	Dec-97	2.84
MACAO	11	502,325	Jan-98	2.19
MALAYSIA	1,386	20,491,303	Feb-98	6.76
MALDIVES	5	28,0391	Apr-97	1.78
MONGOLIA	0	2,538,211	Feb-98	0.00
MYANMAR	2,312	46,821,943	Mar-98	4.94
NEPAL	183	23,107,464	Mar-98	0.79
OMAN	151	2,264,590	Dec-97	6.67
PAKISTAN	147	132,185,299	Dec-97	0.11
PHILIPPINES	321	76,103,564	Feb-98	0.42
QATAR	88	670,274	Dec-97	13.13
REPUBLIC OF KOREA	96	45,948,811	Mar-98	0.21
SAUDI ARABIA	349	20,087,965	Mar-98	1.74
SINGAPORE	359	3,440,693	Feb-98	10.43
SRI LANKA	77	18,721,178	Mar-98	0.41
SYRIAN ARAB REPUBLIC	53	16,137,899	Dec-97	0.33
TAJIKISTAN	0	5,945,903	Dec-97	0.00
THAILAND	83,357	59450818	Mar-98	140.21
TURKEY	259	63,528,225	Mar-98	0.41

TURKMENISTAN	1	4,229,249	Nov-95	0.02
UNITED ARAB EMIRATES	8	2,262,309	Dec-90	0.35
UZBEKISTAN	5	23467,724	Dec-97	0.02
VIET NAM	1,202	75,123,880	Apr-98	1.60
YEMEN	82	13,972,477	Dec-96	0.59
TOTAL	**101,429**			
EUROPE				
ALBANIA	10	3,299,757	Mar-98	0.30
AUSTRIA	1,798	8,132,505	Mar-98	22.11
BELARUS	17	10,412,219	Mar-98	0.16
BELGIUM	2,448	10,165,059	Mar-98	24.08
BOSNIA HERZEGOVINA	17	3,222,584	Jun-97	0.53
BULGARIA	55	8,290,988	Mar-98	0.66
CROATIA	124	4,664,710	Mar-98	2.66
CZECH REPUBLIC	112	10,298,324	Mar-98	1.09
DENMARK	2118	5,305,048	Mar-98	39.92
ESTONIA	17	14,365,58	Mar-98	1.18
FORMER YUGOSLAVIAN REP. MACEDONIA *	25	1,995,859	Mar-98	1.25
FINLAND	273	5,137,269	Mar-98	5.31
FRANCE	47,953	58,609,285	Mar-98	81.82
GERMANY	17,283	82,071,765	Mar-98	21.06
GREECE	1,766	10,616,055	Mar-98	16.64
HUNGARY	287	10,232,404	Mar-98	2.80
ICELAND	44	269,697	Mar-98	16.31
IRELAND	615	3,606,952	Mar-98	17.05
ITALY	41,627	56,830,508	Mar-98	73.25
LATVIA	21	2421,163	Mar-98	0.87
LITHUANIA	14	3,617,104	Mar-98	0.39
LUXEMBOURG	128	420,416	Mar-98	30.45
MALTA	46	377,177	Mar-98	12.20
MONACO	40	31,892	Mar-98	125.42
NETHERLANDS	4,701	15,649,729	Mar-98	30.04
NORWAY	609	4,399,993	Mar-98	13.84
POLAND	627	38,615,239	Mar-98	1.62
PORTUGAL	4,891	9,931,045	Mar-98	49.25
REP. OF MOLDOVA	17	4,457,206	Mar-98	0.38
ROMANIA	5,280	22,463,077	Mar-98	23.51
RUSSIAN FEDERATION	325	147,305,569	Mar-98	0.22
SAN MARINO	9	24,714	Mar-98	36.42
SLOVAK REPUBLIC	18	5,387,665	Mar-98	0.33

SLOVENIA	66	1973096	Mar-98	3.34
SPAIN	50155	39,107,912	Mar-98	128.25
SWEDEN	1570	8,865,051	Mar-98	17.71
SWITZERLAND	6215	7,240,463	Mar-98	85.84
UKRAINE	498	50,447,719	Mar-98	0.99
UNITED KINGDOM	15,373	57,591,677	Mar-98	26.69
YUGOSLAVIA*	698	11,223,853	Mar-98	6.22
TOTAL	**207,890**			
OCEANIA				
AMERICAN SAMOA	0	61,819	Sep-97	0.00
AUSTRALIA	7,571	18,438,824	Feb-98	41.06
COOK ISLANDS	0	19,776	Sep-97	0.00
FIJI	8	792,441	Sep-97	1.01
FRENCH POLYNESIA	47	233,488	Jan-97	20.13
GUAM	49	160,595	Mar-98	30.51
KIRIBATI	4	82,449	Oct-97	4.85
MARIANA ISLANDS	8	60,652	Apr-98	13.19
MARSHALL ISLANDS	2	60,652	Feb-98	3.30
MICRONESIA (Federated States of)	2	127,616	Apr-98	1.57
NAURU	0	10,390	Oct-97	0.00
NEW CALEDONIA	55	191,003	Aug 97	28.80
NEW ZEALAND	641	3,587,275	Feb-98	17.87
NIUE	0	1,708	Mar-98	0.00
PALAU	1	17,240	Mar-98	5.80
PAPUA NEW GUINEA	342	4,496,221	Jan-98	7.61
SAMOA	6	219,509	Aug-97	2.73
SOLOMON ISLANDS	0	426,855	Aug-97	0.00
TOKELAU	0	1,463	Sep-97	0.00
TONGA	7	107,335	Feb-98	6.52
TUVALU	0	10,297	Oct-97	0.00
VANUATU	0	181,358	Aug-97	0.00
WALLIS & FUTUNA IS	1	14,817	Jan-97	6.75
TOTAL	**8,744**			
WORLD TOTAL	**1,964,860**			

Source: WHO Weekly Epidemiological Record Vol. 73, No. 26, 1998.
Central Intelligence Agency. (1997) World Factbook, 1997, [Online], Available: http://www.ocdi.gov/cia/publications/factbook/index.html [1998. June 26].

*Refers to States/areas of the former Socialist Federal Republic of Yugoslavia not otherwise listed separately.

APPENDIX 1

Instructions for using FAXlink

(A) Using the handset on your fax machine, dial (613)–941–3900 and wait for a response.

(B) FAXLINK will ask you to select the language you would like for instructions and documents.
Press:
(1) for English; or
(2) for French.
Please note that the language you select refers to both the instructions and the report you will receive.

8 Next, FAXLINK will ask you to select the subject area you would like to access.
Press:
(1) for AIDS information; or
(2) for Travel-related health information; or
(3) for Current and past CCDR articles; or
(4) for Respiratory or virus reports; or
(9) to exit FAXLINK.

(D) FAXLINK will now ask you if you would like instructions for the FAXLINK system/how to get in touch with the Laboratory Centre for Disease Control or to continue.
Press:
(2) to continue.

(E) Next, FAXLINK will ask you if you wish to receive either an INDEX of available documents or to request a specific document(s).
Press:
(2) To select document(s) from the INDEX

(F) You may now select the document(s) you would like to receive. FAXLINK will ask you to press the number of the document you want and then to press the # key. FAXLINK will confirm your selection.
Press:
(1) if correct; or (2) if incorrect.

Next, FAXLINK will ask you if you would like another document. If you do not want another document, press the (#) key to end selections. If you want another document press the number of the document and then # key. FAXLINK will ask you to confirm your selection.
Press:
(1) if correct; or (2) if incorrect.

Continue with these instructions until all documents have been selected.

(G)To receive the documents you have selected, FAXLINK will ask you to press the RECEIVE OR START BUTTON on your fax machine after the tone.If you have any problems, please call (613) 954–9285 or (613) 957–0317.

APPENDIX 2

Data Sources

B.C. Centre for Disease Control
828 West 10th Avenue
Vancouver, British Columbia
V5Z 1L8

Provincial AIDS Program
Alberta Health, 9th Floor
10025 Jasper Ave.
Box 1360
Edmonton, Alberta
T5J 2N3

Infectious Disease Control
Department of Health
P.O. Box 1320
Yellowknife, Northwest Territories
X1A 2L9

Manitoba Department of Health
HIV Laboratory and Social Development
800 Portage Avenue, Room 405
Winnipeg, Manitoba
R3G 0N4

Communicable Disease Control Unit
Medical Services Branch, Yukon Region
No. 5 Hospital Rd.
Whitehorse, Yukon
Y1A 3H7

Southern Alberta HIV Clinic
Foothills Hospital
#213 - 906 8th Ave. S.W.
Calgary, Alberta
T2P 1H9

Saskatchewan Health
3475 Albert St.
Regina, Saskatchewan
S4S 6X6

HIV Laboratory
Central Public Health Laboratory
Ontario Ministry of Health
81 Resources Rd.
Etobicoke, Ontario
M9P 3T1

The Hospital for Sick Children
Department of Paediatrics
Division of Infectious Diseases
555 University Ave.
Toronto, Ontario
M5G 1X8

Centre québécois de coordination sur le sida
Gouvernement du Québec
Place Ministère de la Santé et des Services sociaux
201 Crémazie est. Bureau RC 03
Montréal, Québec
H2M 1L2

Laboratoire de Santé Publique du Québec
20 045, chemin Ste-Marie
Sainte-Anne-de-Bellevue, Québec
H9X 3R5

Department of Health and Community Services
520 King Street, Carleton Place
P.O. Box 5100
Fredericton, New Brunswick
E3B 5G8

Public Health Services
Department of Health
1690 Hollis Street, 11th Floor
P.O. Box 488
Joseph Howe Building
Halifax, Nova Scotia
B3J 2R8

Department of Health and Social Services
P.O. Box 2000, Jones Building
Charlottetown, Prince Edward Island
C1A 7N8

Newfoundland Department of Health
Disease Control and Epidemiology
West Block, Confederation Building
P.O. Box 8700
St. John's, Newfoundland
A1B 4J6